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التاريـــخ: / /

نموذج رقم (١٨)
اقرار والتزام بالمعايير الأخلاقية والأمانة العلمية
وقوانين الجامعة الأردنية وأنظمتها وتعليماتها
لطلبة الماجستير

أنا الطالب: حسناء ابراهيم حسن سليمان الرقم الجامعي: (8081481)
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عنوان الرسالة: ....
Commodity Chain Analysis and Exports of Dates in Jordan

اعلن بأنني قد التزمت بقوانين الجامعة الأردنية وأنظمتها وتعليماتها وقراراتها السارية المفعول المتعلقة باعداد رسائل الماجستير عندما قمت شخصيا" باعداد رسالتي وذلك بما ينسجم مع الأمانة العلمية وكافة المعايير الأخلاقية المتعارف عليها في كتابة الرسائل العلمية. كما أنني أعلن بأن رسالتي هذه غير منقولة أو مستلة من رسائل أو كتب أو أبحاث أو أي منشورات علمية تم نشرها أو تخزينها في أي وسيلة اعلامية، وتأسيسا" على ما تقدم فانني أتحمل المسؤولية بأنواعها كافة فيما لو تبين غير ذلك بما فيه حق مجلس العمداء في الجامعة الأردنية بالغاء قرار منحي الدرجة العلمية التي حصلت عليها وسحب شهادة التخرج مني بعد صدورها دون أن يكون لي أي حق في التظلم أو الاعتراض أو الطعن بأي صورة كانت في القرار الصادر عن مجلس العمداء بهذا الصدد.

توقيع الطالب: .... التاريخ: 5 / 4 / 2011

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التوقيع..........
التاريخ 5/4/2011

COMMODITY CHAIN ANALYSIS AND EXPORTS OF DATES IN JORDAN

By

Hasna'a Ibrahim Hassan Suleiman

Supervisor

Dr. Mohammad S. El-Habbab, Prof.

This Thesis was Submitted in Partial Fulfillment of the Requirements for the Master's Degree of Science in Agricultural Economics and Agribusiness

Faculty of Graduate Studies

The University of Jordan

March, 2011

COMMITTEE DECISION

This Thesis (Commodity Chain Analysis and Exports of Dates in Jordan) was successfully defended and approved on March 16, 2011

Examination Committee	**Signature**
Dr. Mohammad Samir El-Habbab (Supervisor) Prof. of Agricultural Marketing	--------------------------------
Dr. Mahmoud Ali Salem (Member) Prof. of Resource and Production Economics	--------------------------------
Dr. Ahmad Shukri Al-Rimawi (Member) Prof. of Extension & Development	--------------------------------
Dr. Sami Ahmed Al-Smadi (Member) Prof. of Marketing (Yarmouk University)	--------------------------------

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Dr. Sami Ahmed Al-Smadi (Member) Prof. of Marketing (Yarmouk University)	---------------------------------

DEDICATION

To …

My Mother & My Father

To …

My Sisters & My Brother

To …

My Husband … Mu'ayyad

Thank you all …

AKNOWLEDGEMENTS

I am heartily thankful to my supervisor, Prof. Mohammad S. El-Habbab, whose encouragement, guidance and support enabled me to develop an understanding of the subject. I'm also thankful to all professors in the department of Agricultural Economics and Agribusiness Management in the faculty of Agriculture at the University of Jordan.

I would also like to thank my colleagues who worked closely with me in the laboratory of the Agricultural Economics department in the faculty of Agriculture, helping and supporting me to accomplish this thesis.

Special thanks to my father who accompanied me in the field work and in data collection and to my family for their unfailing help and support. Special thanks also to the agricultural engineers in the Laboratory of the Red Palm Weevil and Jordan Palm Association in the Jordan Valley region.

I would like to extend my thanks to all the people contributed and helped me accomplish this thesis.

Table of Contents

COMMITTEE DECISION viii
DEDICATION iii
Table of Contents v
List of Tables ix
List of Figures xi
List of Abbreviations xii
ABSTRACT xiv
Chapter 1: Preface 1
1.1 Introduction 2
1.2 Theoretical Background 4
1.2.1 Commodity Chain Analysis 4
1.2.2 Policy Analysis Matrix (PAM) 6
1.2.3 Enterprise Budget 7
1.2.4 Value Added (VA) 8
1.2.5 Competitive Advantage 9
1.2.5.1 Trade Entropy Index (TEI) 10
1.2.5.2 Constant Market Share (CMS) 10
1.3 literature Review 12
1.3.1 Commodity Chain Approach: 12
1.3.2 Policy Analysis Matrix (PAM) Approach: 13
1.3.3 Competitiveness Measures: 14
1.4 Objectives 16
1.5 Study Structure 16
Chapter 2: The Agricultural Sector and Date Production in Jordan 18
2.1 Agriculture in Jordan 19
2.2 Resources in Jordan 19
2.2.1 Water Resources 19
2.2.2 Land Resources 20
2.2.3 Human Resources 22
2.3 Production Sector 22
2.3.1 Plant Production 22
2.3.2 Livestock Production 24
2.4 Dates Palm Sector in Jordan 25
2.4.1 Locations 26
2.4.2 Area and Production 28
2.4.3 Foreign Trade 31
2.4.4 Varieties 32
2.4.4.1 Medjool Dates 33
2.4.4.1.1 Features of Medjool Tree 33
2.4.4.1.2 Features of Medjool Fruits 33
2.4.4.2 Barhi Dates 34
2.4.4.2.1 Features of Barhi Tree 35
2.4.4.2.2 Features of Barhi Fruit 35
2.4.5 Private Sectors Institutions for Dates in Jordan 35
2.4.5.1 Jordan Dates Producer and Marketing Association (JODA) 35
2.4.5.2 Jordan Palm Association (JPA) 36
2.4.6 SWOT Analysis for Dates Sector in Jordan 36

Chapter 3: Methodology 38
3.1 Data Collection: 39
3.1.1 Primary Data: 39
3.1.1.1 Date palm farms: 39
3.1.1.2 Importers: 40
3.1.1.3 Exporters: 40
3.1.1.4 Commission Agents: 40
3.1.1.5 Retailers: 40
3.1.2 Secondary Data: 40
3.1.3 The Study Area and Sampling 41
3.1.3.1 Farmers 41
3.1.3.2 Commission Agents 41
3.1.3.3 Retailers 42
3.1.3.4 Importers 42
3.1.3.5 Exporters 42
3.2 Data Analysis: 43
3.2.1 Descriptive Analysis: 43
3.2.2 Policy Analysis Matrix (PAM): 43
3.2.3 Value Added (VA) 45
3.2.4 Competitive Advantage 46
3.2.4.1 Trade Entropy Index (TEI) 46
3.2.4.2 Constant Market Share (CMS) 46
3.2.4.3 Revealed Comparative Advantage (RCA) 47
3.2.4.4 Revealed Comparative Advantage (RCA), Vollrath 47
Chapter 4: Results and Discussion 49
4.1 Descriptive Analysis Section 50
4.1.1 Commodity Chain Agents 50
4.1.1.1 Dates Palm Farmers 50
4.1.1.1.1 Location 50
4.1.1.1.2 Varieties and Productivity 50
4.1.1.1.3 Marketing Channels and Margins 51
4.1.1.1.3.1 Grading and Packaging Line 51
4.1.1.1.3.2 Post-harvest Process 51
4.1.1.1.3.3 Storage 54
4.1.1.1.3.4 Transportation 55
4.1.1.1.3.5 Market Fees 55
4.1.1.1.4 Sales 55
4.1.1.1.4.1 Dates Destinations 55
4.1.1.1.4.2 Prices 56
4.1.1.1.5 Exports 56
4.1.1.1.6 Contract Farming 58
4.1.1.1.7 Certifications 58
4.1.1.2 Commission Agents 59
4.1.1.2.1 Varieties and Sources 59
4.1.1.2.2 Purchasing and Selling Prices 60
4.1.1.2.3 Marketing Costs 61
4.1.1.2.3.1 Transportation and Storage: 61
4.1.1.2.3.2 Market Fees and Commission: 61
4.1.1.2.4 Sales 61
4.1.1.3 Retailers 62

4.1.1.3.1 Varieties and Sources 62
4.1.1.3.2 Types and Locations of Retailers 63
4.1.1.3.2.1 Types of Retailers: 63
4.1.1.3.2.2 Locations of Retailers: 64
4.1.1.3.3 Purchasing and selling prices 65
4.1.1.3.4 Marketing Costs 66
4.1.1.3.4.1 Transportation: 66
4.1.1.3.4.2 Storage: 66
4.1.1.3.4.3 Market Fees 67
4.1.1.3.5 Quantities of Sales 67
4.1.1.4 Exporters 67
4.1.1.4.1 Varieties and Sources 67
4.1.1.4.2 Purchasing Prices 69
4.1.1.4.3 Destination of Dates 69
4.1.1.4.4 Selling Prices 69
4.1.1.4.5 Storage 70
4.1.1.4.6 Transportation 70
4.1.1.4.7 Shipping Practices 71
4.1.1.4.8 Contracts 72
4.1.1.5 Importers 73
4.1.1.5.1 Locations of Importers 73
4.1.1.5.2 Varieties and Sources 73
4.1.1.5.3 Purchasing and Selling Prices 75
4.1.1.5.4 Dates Destinations 75
4.1.1.5.5 Marketing Costs 76
4.1.1.5.5.1 Transportation: 76
4.1.1.5.5.2 Re-packing: 76
4.1.1.5.5.3 Storage: 76
4.1.1.5.6 Contracts 77
4.1.1.6 Final Consumers 77
4.2 Analysis of the Competitiveness of Date Palm Sector 78
4.2.1 Functional analysis 78
4.2.1.1 Functional Analysis of the Commodity Chain of the Local Dates in Jordan 78
4.2.1.2 Functional Analysis of the Commodity Chain of the Imported Dates in Jordan 78
4.2.2 Flow Chart of Marketing Channel and Commodity Chain 79
4.2.2.1 Flow Chart for the Marketing Channel of Local Dates in Jordan 79
4.2.2.2 Flow Chart for the Marketing Channel of Imported Dates 80
4.2.2.3 Commodity Chain for First Grade of Medjool Variety in Jordan 81
4.2.2.4 Commodity Chain for Second Grade of Medjool Variety in Jordan 81
4.2.2.5 Commodity Chain for Barhi –Balah- Variety in Jordan 83
4.2.3 Marketing Margins 84
4.2.3.1 Marketing Margins for First Grade of Medjool Variety in Jordan 84
4.2.3.2 Marketing Margins for Second Grade of Medjool Variety in Jordan 84
4.2.3.3 Marketing Margins for Barhi –Balah- Variety in Jordan 85
4.2.4 Comparative Advantage Measures 86
4.2.4.1 PAM Approach 86
4.2.4.2 Domestic Resources Cost (DRC) 88
4.2.4.3 Social Cost Benefit (SCB) 88

4.2.5 Competitive Advantage Measures 88
4.2.5.1 Trade Entropy Index (TEI) 88
4.2.5.2 Constant Market Share (CMS) 89
4.2.5.3 Revealed Comparative Advantage (RCA), Balassa 92
4.2.5.4 Revealed Comparative Advantage (RCA), Vollrath 92
Chapter 5: Conclusions and Recommendations 94
5.1 Conclusions 95
5.2 Recommendations 97
References 99
Appendices 103
Abstract in Arabic 125

List of Tables

Table 1: Total Cultivated Area in Jordan 2009 23
Table 2: Area, Number of Bearing Trees and Production of Dates Palm in each Region in Jordan Valley 2009 28
Table 3: Area, Number and Production of Dates Palm Trees in Jordan Valley (1999-2009) 29
Table 4: Foreign Trade of Dates in Jordan (1999-2009) 31
Table 5: Varieties of Dates in Jordan and Productivity, Maturity date and Uses 32
Table 6: SWOT analysis for Dates Sector in Jordan 37
Table 7: Retailers Sample 42
Table 8: Policy Analysis Matrix 43
Table 9: Varieties of Dates Planted in Jordan Valley 51
Table 10: Owning the Grading and Packaging Line 51
Table 11: Cleaning Medjool Variety 52
Table 12: Cleaning Barhi Variety 52
Table 13: Type of Container for each Dates Variety 53
Table 14: Capacity of Container for each Dates Variety 53
Table 15: Grading of each Dates Variety and Grading System Used 54
Table 16: Storage of Dates in Farms 54
Table 17: Destination of each Dates Variety from Farms 56
Table 18: Dates Variety Exports 57
Table 19: The possibility of Farmers to sign contracts 58
Table 20: Owning Certificates 59
Table 21: Dates Varieties Marketed At the Wholesale Market 60
Table 22: Source of each Dates Variety Marketed At the Wholesale Market 60
Table 23: Storage of Dates at the Wholesale Market 61
Table 24: Destination of Dates from the Wholesale Market 62
Table 25: Dates Varieties that the Retailers Deal with 62
Table 26: Source of Each Dates Variety that the Retailers Deal with 63
Table 27: Purchasing and Selling Prices for each Dates Variety in each Region 65
Table 28: Transportation of Dates from Retailers 66
Table 29: Source of Exported Dates Variety 68
Table 30: Destination of Dates from Exporters 69
Table 31: Transportation Dates from Exporting Farm 71
Table 32: Transportation Dates from Exporting Company 71
Table 33: Type of Shipping to Arab Countries 71
Table 34: Locations of Importers 73
Table 35: Source of Imported Dates Variety 74
Table 36: Destination of Dates from Importers 76
Table 37: Functional Analysis of the Commodity Chain of the Local Dates in Jordan . 78
Table 38: Functional Analysis of the Commodity Chain of the Imported Dates in Jordan 79
Table 39: Marketing Margins for First Grade of Medjool Variety in Jordan 84
Table 40: Marketing Margins for Second Grade of Medjool Variety in Jordan 85
Table 41: Marketing Margins for Barhi –Balah- Variety in Jordan 85
Table 42: Jordan's Exports, Imports, Taxes and Subsidies 87
Table 43: Policy Analysis Matrix for Medjool Variety 87
Table 44: Policy Analysis Matrix for Barhi Variety 87

Table 45: Domestic Resources Cost and Social Cost Benefit Coefficients for Medjool and Barhi Varieties 88
Table 46: Average Imports for Dates to the Selected Countries from the World and from Jordan as an Average of the Period 2002-2007 (ton) 90
Table 47: Market Share for Dates in the Selected Countries 91
Table 48: Constant Market Share Calculation Results for Jordanian Dates during the Period 2002-2007 91
Table 49: Balassa's Revealed Comparative Advantage Index of Jordan 92
Table 50: Vollrath's Revealed Comparative Advantage Index of Jordan 92
Table 51: Relative Trade Advantage Index of Jordan 93

List of Figures

Figure 1: Four Links in a Commodity Chain 5
Figure 2: The Components of the Changes in Total Exports 11
Figure 3: Percent of Total Area for each Crop in Jordan (2009) 23
Figure 4: Total Cultivated Area in Jordan 2009 24
Figure 5: Percent of each kind of Livestock in Jordan 2009 25
Figure 6: Location of Dates Palm Cultivation in Jordan 26
Figure 7: Area and Production of Dates Palm in Some Regions in Jordan (2009) 27
Figure 8: Percent of Dates Palm Area in Some Regions in Jordan (2009) 27
Figure 9: Percent of Area for Dates palm in each Region in Jordan Valley 28
Figure 10: Area of Dates Palm in Jordan Valley (1999-2009) 29
Figure 11: Total Number of Dates Palm Trees in Joradn Valley (1999-2009) 30
Figure 12: Trend of Dates Palm Production (1999-2009) 30
Figure 13: Imports and Exports Value of Dates in Jordan (1999-2009) 31
Figure 14: Marketing Channels for Dates in Jordan 39
Figure 15: Location of Dates Palm Farm in the Jordan Valley 50
Figure 16: Destination of Exported Dates 57
Figure 17: Types of Retailers 64
Figure 18: Locations of Retailers in the Sample 65
Figure 19: Varieties of Exported Dates 67
Figure 20: Types of Exporters 68
Figure 21: Storage of Dates by Exporters 70
Figure 22: Cost of shipping 72
Figure 23: The possibility of Exporters to sign contracts 73
Figure 24: Imported Dates Varieties 74
Figure 25: The Highest Import Period 75
Figure 26: The Possibility of Importers to Sign Contracts 77
Figure 27: Flow Chart for the Marketing Channel of Local Dates in Jordan 80
Figure 28: Flow Chart for the Marketing Channel of Imported Dates 80
Figure 29: Commodity Chain for First Grade of Medjool Variety in Jordan 81
Figure 30: Commodity Chain for Second Grade of Medjool Variety in Jordan 82
Figure 31: Commodity Chain for Barhi –Balah- Variety in Jordan 83
Figure 32: The Entropy Index of Export of Dates from Jordan to the Selected Countries 89
Figure 33: Jordan's exports of dates to the selected countries during 2002-2007 90

List of Abbreviations

ACE	Agricultural Cooperative in Ethiopia
CC	Conformity Coefficient
CCA	Commodity Chain Analysis
CEP	Comparative Export Performance
CIF	Cost, Insurance and Fight
CMS	Constant Market Share
DOS	Department of Statistics
DRC	Domestic Resource Coefficient
EER	Equilibrium Exchange Rate
EPR	Effective Protection Coefficient
ES	Export Similarity
FAOSTAT	Food and Agriculture Organization Statistical Database
FOB	Free on Board
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GP	Gross Profit
HACCP	Hazard Analysis Critical Control Point
ISO	International Standard Organization
ITC	International Trade Center
JD	Jordanian Dinar
JEPA	Jordan Exportation and Producers Fruit and Vegetables Association
JODA	Jordan Dates Producer and Marketing Association
JPA	Jordan Palm Association
MCM	Million Cubic Meter

MOA	Ministry of Agriculture
NENA	Near East and North African Region
NPC	Nominal Protection Coefficient
OER	Official Exchange Rate
PAM	Policy Analysis Matrix
PCR	Private Cost Ratio
R&D	Research and Development
RCA	Revealed Comparative Advantage
RGoB	Royal Government of Bhutan
RMA	Relative Import Advantage
RMP	Relative Import Penetration
RTA	Relative Trade Advantage
RXA	Relative Export Advantage
SCB	Social Cost Benefit
SCF	Standard Correction Factor
TEI	Trade Entropy Index
TO	Trade Overlap
UAE	United Arab Emirates
USAID	United States Agency for International Development
VA	Value Added

COMMODITY CHAIN ANALYSIS AND EXPORTS OF DATES IN JORDAN

By
Hasna'a Ibrahim Hassan Suleiman

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Prof. Mohammad S. El-Habbab

ABSTRACT

The main purpose of this study is to enhance the exports of dates with many other secondary objectives. These objectives are: identifying and analyzing the marketing channels, studying the roles and functions of the agents involved in the date's commodity chain, assessing the comparative and competitive advantage, and improving competitiveness of Jordanian dates. To achieve these objectives, various methodologies were used to identify each agent in the commodity chain. In addition, the functional analysis was conducted, and flow charts of marketing channels for local and imported dates were prepared. Besides, commodity chain and marketing margins for Medjool and Barhi varieties were calculated. Many coefficients such as Domestic Resources Cost (DRC), Social Cost Benefit (SCB), Constant Market Share (CMS) and Trade Entropy Index (TEI) were also calculated to assess the competitiveness of date palm in Jordan.

The findings of this study showed that the Jordanian dates have a comparative advantage and a good competitive advantage against South African dates in 2007, but the Jordanian dates have competitive disadvantages with Israel ones. Also they showed that the highest export concentration was to Saudi Arabia and Bahrain. Also the exports of Jordanian dates did continuously increase, and Jordan was able to maintain its share of destination imports, but the competitiveness levels deteriorated due to the high competition in the market.

Due to the increase in the competition occurring in global markets, the study recommend producers which have to find innovative ways to improve the effectiveness and efficiency of their supply chain. Thus, they should exploit and rectify the linkages in the commodity chain and offer channels to maintain the competitive advantage.

Chapter 1

Preface

1.1 Introduction

The Hashemite kingdom of Jordan is located in the east of the Mediterranean between the two parallels 29 and 33 north and Meridians 34 and 39 east of Greenwich. The total area of the country is 89.3 million dunums. The total cultivated area in 2009 was 2,241,907 dunums, which is equal to 2.51% of the total area. (Ministry of Agriculture, 2009)

Jordan is divided into four main topographic areas: the continental region of Jordan River Valley, Wadi Araba and the Dead Sea, the highlands, and the desert. (Ministry of Agriculture, 2009)

The Agricultural sector in Jordan contributed with about 3.01% of Jordan GDP in 2008. The total exports of good and services were JD 8,657 million in 2008. About 9.56% of the total exports were of plant production sector, and 0.96% were of the animals' production sector. The total imports of good and services of Jordan were JD 13,559.10 million in 2008; 60.20% of the total imports were plant production, and 20.02% were animal production. (Department of Statistics, 2008)

The commercial cultivation of date palm trees in Jordan is considered new, but it increased largely over the past ten years as they hit the area around (20000) dunums according to the Ministry of Agriculture in 2008 statistics as compared with (2194) dunums in 1995. The sector is considered small and concentrated mainly in the Jordan Valley and in the Aqaba Special Economic Zone, These two areas accounted for 85%. The rest (i.e. 15%) are planted in the following areas: Al-Azraq area, Zarqa and the southern Jordan Valley areas and others since this crop can tolerate drought and salinity. (Ministry of Agriculture, 2009)

The most important varieties of date palm grown in Jordan are: Medjool and Barhi which constitute about 85% of the cultivated varieties. There are other less important varieties such as Dejlet Nour, Khalas, Hayyane and Khadrawi. (Ministry of Agriculture, 2009)

Jordan imported dates mostly out of Saudi Arabia, Iraq and the Gulf States, while it exported dates to many European and Arab countries. According to the Ministry of Agriculture statistics, the total imports and exports in 2009 have amounted to 9753.46 tons and 1907.13 tons, respectively.

The date palm sector in Jordan faces many problems which are: problems are: productivity, marketing, and export problems: (Ministry of Agriculture, 2008).

Problems related to production are mainly:

- Lack of high quality of seedlings, available with suitable prices in Jordan.
- The limited availability of modern machinery for the development of date palm sector such as post-harvesting machines.

The problems related to both marketing and exports are mainly:

- Lack of local experience in the marketing process internally and externally.
- Lack of marketing information to dates producers.
- An acute shortage of information on foreign markets and export
- Agricultural and technical requirements of some countries especially the European countries
- The high costs of transport and shipping
- Lack of coordination between the relevant authorities
- Lack of farmers' interest with post-harvest technology practices such as sorting, grading and packaging.

According to the previous problems, the study problems and justifications are the weakness in the marketing channels and commodity chain analysis which play a key role in determining the need and scope for systemic competitiveness in date palm sector. There is a need to evaluate each stage of the commodity chain, and it is necessary to measure both the comparative advantage and the competitive advantage for this crop to enhance exports.

The study will try to answer the following questions:

1. What are the routs that these commodities follow to the final consumer?
2. What are the problems that face the movements of these commodities through the marketing channels?
3. What is the structure (economic relationships) between the members in the chain? And what are the problems facing each agent?
4. Who are the key determinants of the date's market share?
5. How could the competitiveness of the date palms be enhanced?

1.2 Theoretical Background

1.2.1 Commodity Chain Analysis

According to Kaplinsky and Morris (2000), the commodity chain describes the full range of activities, required to bring a product or service from conception through the different phases of production (involvement of a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use. Considered in its general form, a commodity chain takes the shape as shown in Figure 1. It can be seen from this that production per se is only one of a number of value added links. Moreover, there are ranges of activities within each link

of the chain. Although they are often depicted as a vertical chain, the intra-chain linkages are most often of a two-way nature; for example, specialized design agencies don't influence the nature of the production process and marketing, but they are in turn influenced by the constraints in these downstream links in the chain.

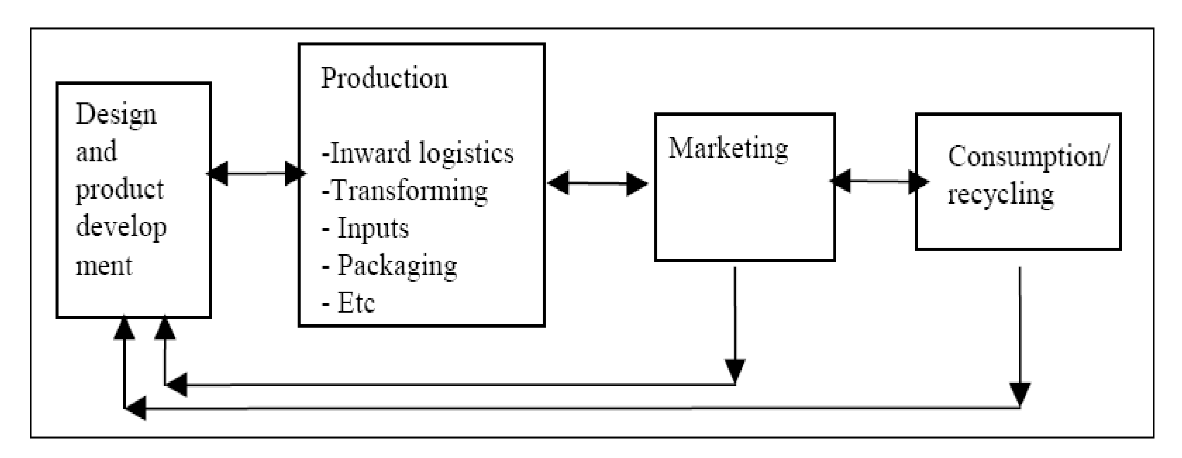


Figure 1: Four Links in a Commodity Chain

The commodity chain is an important construction to understand the distribution of returns arising from design, production, marketing, coordination and recycling. Essentially, the primary returns accrue to those parties who are able to protect themselves from competition.

There are three main reasons why commodity chain analysis is important in this era of rapid globalization.

- With the growing division of labor and the global dispersion of the production of components, competitiveness has increasingly become important.
- Efficiency in production is a necessary condition for successfully penetrating global markets.
- Entry into global markets which allow the sustained income growth, that is, making the best of globalization requires an understanding of dynamic factors within the whole commodity chain.

Commodity chain analysis plays a key role in understanding the need and scope for systemic competitiveness. The analysis and identification of core competences will lead the firm to outsource those functions where it has no distinctive competences. Mapping the flow of inputs whether goods or services in the production chain allows each firm to determine whose behavior plays an important role in its success. Then, in those cases where the firm does not internalize much or most of the commodity chain in its own operations, its own efforts to upgrade and achieve efficiency will have too little effect. The same challenge is true for national or regional economic management; upgrading the performance of individual firms in a region may have little impact if they are full of inefficiency. (Kaplinsky, R. and Morris M., 2000)

1.2.2 Policy Analysis Matrix (PAM)

The Policy Analysis Matrix (PAM) contains data on revenues, cost and profits for an individual crop in both private and social prices. The PAM simply reorganizes the data from the private and social budgets to facilitate the evaluation of policy effects and market failures on tradable inputs, domestic resources, and outputs. (Hindi, 2004)

The PAM is based on a simple accounting identity, namely: Profit = Revenues – Costs. Policy effects and market failures (Effects of divergences and efficiency policy / Transfers) represent the difference between private and social values of outputs and inputs. (Harrigan, *et al*, 1993).

The matrix measures the extent to which actual market prices for a particular commodity diverge from efficiency prices. It, therefore, indicates the level of distortion in the commodity market and hence the degrees to which resources are likely to be misallocated. The PAM's main application is to analyze the effects of governmental policy interventions. The matrix is able to analyze a wide range of governmental

interventions, including commodity specific policies such as taxes/ subsidies on inputs and outputs. (Hindi, 2004).

Through this matrix, more measures could be calculated. These measures are:

1. private Cost Ratio (PCR) = C / A – B
2. Domestic Resource Cost Ratio (DRC) = G / E – F
3. Effective Protection Coefficient (EPC) = A – B / E – F
4. Nominal Protection Coefficient (NPC) = A / E

1.2.3 Enterprise Budget

PAM draws heavily on enterprise budgets. An enterprise budget is an organized listing of estimated gross income and costs used to determine the expected net income for a particular enterprise (crop or livestock). This type of budget is calculated on a per unit basis such as a dunum of land or head of livestock for one year or one production period.

This fact sheet gives information on the use of enterprise budgets to help estimate them per unit gross income, costs, net income and break-even figures on an annual basis for crop and livestock enterprises.

The information in an enterprise budget can be organized in different ways, but it typically includes sections on gross income, variable costs, fixed costs, and net income above selected costs.

The gross income consists of the level of output and price per unit of output. It is for any enterprise estimated by multiplying the amount of expected output by the price per unit of output.

Variable costs depend on the level of output produced. They include items such as seed, fertilizer, lime, fuel, lubricants, chemicals for weed, disease and insect control,

purchased feed, veterinary services and medicine, repairs, interest on variable capital and so on.

To simplify cost estimates, the units, quantities and prices associated with the individual expenses should be indicated.

Fixed costs are those incurred regardless if the output is or is not produced. Building and machinery fixed costs include depreciation, interest on average investment, some repairs, taxes and insurance. Land is an important input, which should be valued. If someone owns a land, he or she should charge an opportunity cost against it.

Income above costs is the income remaining after covering the specified costs included in the budget. There are several incomes above costs that can be calculated. Two examples are income above variable costs and income above variable (Gross Margins) and fixed costs (Profit). Also, enterprise budgets contain information which enables us to calculate break-even yields and prices, if needed. (Hindi, 2004)

1.2.4 Value Added (VA)

One of the most critical concepts in Commodity Chain Analysis (CCA) is that of VA. Many of the calculations conducted are created by individual agents in terms of the value added. In order to understand what the meaning of this is, the researcher can start thinks of a productive agent as being represented by a box into which inputs flow and out of which comes a product or an output. Implicit in the notion of a “flow” is a period of time, which in this context often referred to as the accounting period and which usually takes a year. This allows the researcher to divide the inputs of the production process into two groups:

1. Factors of production which are totally transformed or consumed during the accounting period - intermediate inputs;

2. Factors of production which are partially used only during the accounting period, when they provide inputs to the production process over a number of years before being fully depleted - investmen goods. (Tallec and Bockel, 2005).

1.2.5 Competitive Advantage Measures

The idea of maximizing productivity and efficiency within a distinct industry is known as achieving a competitive advantage. In other words, a country will choose which industries to be specialized at, based on a comparative advantage. Once the industries are chosen, the country will then focus on efficiency within each industry as in an attempt to get a competitive advantage relative to other countries. (Shapiro, 2000)

In order to estimate the competitiveness of the countries in question in different categories of trade, the following indices could be used:

1. Trade Entropy Index (TEI)

2. Constant Market Share (CMS)

3. Revealed Comparative Advantage (RCA) Coefficient, by using Balassa's (1965) formula

4. Comparative Export Performance (CEP), formula (Donges 1982)

5. Trade Overlap (TO), Formula (Finger and de Rosa) (1979) for the calculation of the overall importance of intra-industry in comparison with inter industry

6. Export Similarity (ES), Formula of Finger and Kreinin (1979) in analogy to the TO index

7. Conformity Coefficient (CC) by using Fels and Horn (1972)

1.2.5.1 Trade Entropy Index (TEI)

This index is used in trade analysis to measure the concentration or dispersion of trade. These trade flows can be either in terms of imports or exports. The higher the index the more dispersed is the export (import) pattern of that country. The validity of the index derives from weighting each component of share (b_{ij}) by its relevance ln ($1/b_{ij}$). This means that if the value of b_{ij} for a country is very high, it will be scaled down by the ln ($1/b_{ij}$) term and the maximum value is achieved when all shares are equal. (Arzo Inal, 2003).

1.2.5.2 Constant Market Share (CMS)

Constant-market-shares (CMS) analysis has often been applied in studies to evaluate export performance and development. The CMS model is based on an identity between the change in the market share of a particular exporting country H in a given market K from the initial year (t) to the final year (t+1) and the so-called product composition and competitiveness effects. The application of traditional CMS to analyze the export change of a focus country has several problems. One of which is the index problem. The results of the CMS analysis depend on the year chosen, the rough which the base year market share and commodity composition can be calculated.

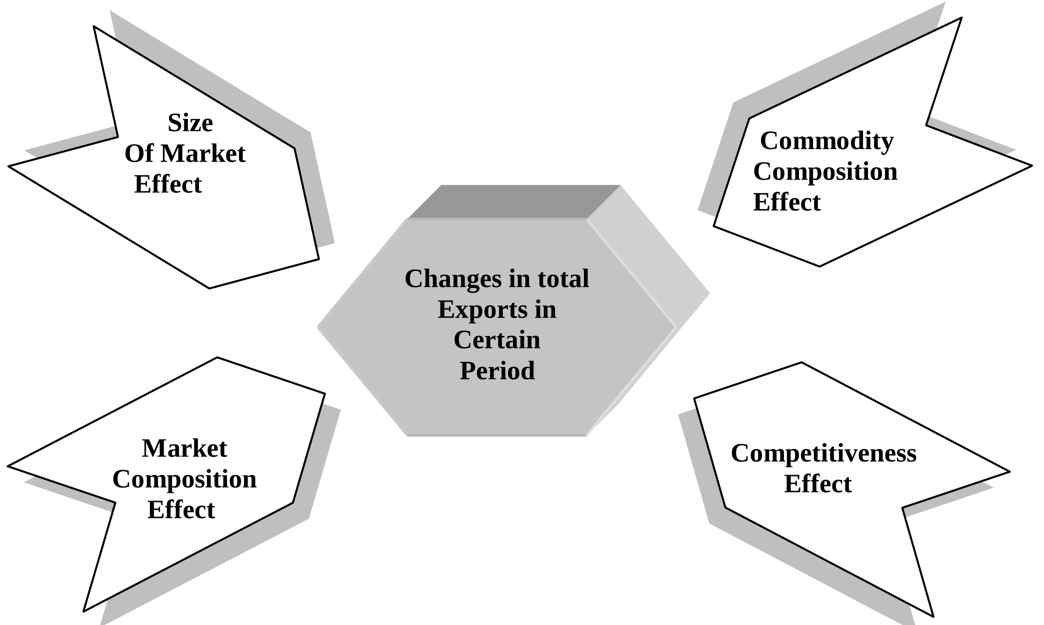
The CMS analysis is used to identify four components of export performance: market size effect, market composition effect, competitive effect and commodity composition effect. (Türkekul, *et.al.* 2007).

Market Size Effect indicates that part of a country’s export growth is attributable to the general increases in the destination market imports. The magnitude of this effect shows the potential increase of a country’s exports if it were able to maintain its share of destination imports.

Market Composition Effect indicates the country's ability to concentrate on relatively rapidly growing countries. The change in exports due to market distribution depends on trade policies and income growth in foreign countries.

Commodity Composition Effect points out whether a country has concentrated on the export of commodities for which markets have rapidly been expanding or on commodities for which markets have less rapidly been expanding. This effect reflects the factor endowment of the export country and the income and price elasticities of demand for the products at which that country specializes.

Competitiveness Effect is defined by the residual term of the CMS model. The residual term picks up everything unexplained by the first three effects. However, this term indicates the improvement or the deterioration in the competitiveness of exports, depending on whether it has a positive or negative sign. It is usually assumed that this effect is independent of the other three effects discussed above, and it largely reflects the role of domestic factors of the exporting countries.



Source: El-Habbab, M., Shideed K., Tolba A., and H. Allam (2009), Assessment of Competitiveness of Egyptian Onion Production.

Figure 2: The Components of the Changes in Total Exports

1.3 literature Review

There are many studies related to commodity chain analysis and other scientific topics related to this study. These studies are divided due to topics into three categories: commodity chain approach, PAM approach, and competitiveness measures.

1.3.1 Commodity Chain Approach:

A Value-Chain Approach to Coffee Production: Linking Ethiopian Coffee Producers to International Markets conducted By Dempsey & Campbell (2001). They used a value-chain analysis at the start of the ACE project, and they try to turn the comparative advantage into the market competitiveness.

The similarity between the previous study and this study is the use of the Commodity/Value Chain Analysis and the use of the Comparative Advantage concepts to evaluate the market competitiveness.

Maize Commodity Chain Analysis conducted by Tirtha *et al* (2007). They have conducted a study on Maize Commodity Chain Analysis to strengthen the capacity of the Royal Government of Bhutan (Royal Government of Bhutan (RGoB) to pilot and support pro-poor development of rural value chains through an appropriate diagnosis and analysis of a commodity. This study is based on the Commodity Chain Analysis (CCA) methodology.

The only similarity between mentioned study and this study is the objective; this study also aims at identifying and analyzing the marketing channel in addition to study and determine the roles and functions of the various agents involved in the commodity chain but to dates not to maize.

Commodity Chain Analysis for selected horticultural exports in NENA Region "Case of Egypt", conducted by Tolba, and Allam, (2008). The aim of this study was to promote and improve the competitiveness of the horticultural exports of Egypt to contribute to increasing income of smallholder export farmers and to alleviate rural poverty. In addition the main objectives of the study were to identify the current situation as it relates to certain specific issues and indicators in Upper Egypt, to study the commodity chain analysis for selected horticultural commodities (vegetables and fruits) which have a comparative advantage in production, marketing and potentials in order to benefit the small holder farmers in Egypt.

The similarity between previous study and this one is the objective; this study also aims at improving competitiveness of dates.

Commodity Chain Analysis for Oregano in Jordan, conducted by El-Habbab, and Hamdan, (2008). The main aim of this study was to undertake commodity chain analysis for oregano in Jordan; the commodity chain analysis aims at describing the commodity chain, number and type of actors and their roles, identifying the constraints at different stages, and identifying the potential for improving the chain in order to increase market shares in domestic and export markets to identify new markets.

The similarity between previous study and this study is the objective. This study also aims at undertaking commodity chain analysis for dates in Jordan.

1.3.2 Policy Analysis Matrix (PAM) Approach:

The impact of subsidy policy on sustainable agricultural products of camel in the UAE (PAM Approach) conducted by Hindi, (2003). The main objective of this study is to examine the impact of subsidy policy on sustainable agricultural products of camels

in the UAE. The specific objectives were: preparation of budgets for proposed agricultural products in the UAE, computing various measures of economic protection, and agricultural policy analysis and policy formulation for agricultural products in the UAE. The methodology used in this study is PAM, descriptive economic and mathematical tools such as averages, and measures of economic protection policy formulation for agricultural products in the UAE, whether the present study will use the Policy Analysis Matrix (PAM) approach for dates in Jordan.

The impact of subsidy policy on sustainable agricultural products of Date Palm in the UAE (PAM Approach) was conducted by Hindi, (2004). The main objective of this study was to examine the impact of subsidy policy on sustainable agricultural products of date palm in the UAE and to conduct agricultural policy analysis formulation for the dates palm in the UAE. In this study, descriptive economic and mathematical tools were used such as averages and PAM. This approach was used to measure the impact of government policy on private profitability of agricultural systems and on the resource use efficiency. The analysis of this study was based on crop budget for Date Palm on the basis of one dunum.

The similarity between the previous study and the present study is the use of PAM for dates in Jordan.

1.3.3 Competitiveness Measures:

Balassa Revealed Comparative Advantage indicator was studied by Poramacon (2002); he conducted a study to evaluate the comparative advantage of Thailand's natural rubber. Revealed Comparative Advantage (RCA) and Constant Market Share

Model (CMS) techniques were applied to natural rubber in Thailand by using 1991-1998 data.

The similarity between the previous study and this study is the evaluationof RCA and CMS in date's sector in Jordan.

Turkey's Competitiveness in the EU Market: a Comparison of Different Trade Measures were conducted by Simsek, *et al* (2007). This paper basically explores the competitiveness of the Turkish firms in the EU Market by employing different trade measures such as the Balassa's Revealed Comparative Advantage Index (RCA), Vollrath's Revealed Competitiveness Index, Trade Entropy Index, Trade Overlap Index, Grubel-Lloyd Index, and Brülhart B Marginal Intra-Industry Trade Index.

The similarity between the previous study and this study is the use of RCA, Vollrath's Revealed Competitiveness Index and Trade Entropy Index for dates sector in Jordan.

Assessment of Competitiveness of Egyptian onion production was conducted by El-Habbab, *et al* (2009). This study examines the competitiveness of onion from Egypt to the EU-15, since imports of the Egyptian onion to these countries comprised about 45% of total imports from the no-EU countries. For the methodology, this study used several comparative and competitive advantage and competitiveness indicators, such as: the Domestic Resource Coefficients (DRC), the Social Cost Benefit (SCB) coefficient (both for comparative advantage evaluation), Constant Market Share (CMS), and Trade Entropy Index (TEI) (both for competitive advantage) in order to determine if the Egyptian onion has a comparative and competitive advantage or doesn't.

This study also will use these indicators to see if the Jordanian dates have a comparative and competitive advantage or don't.

1.4 Objectives

The main objective of this study is to enhance exports of dates; this could be achieved through fulfilling the following secondary objectives:

- To identify and analyze the marketing channels
- To study and understanding the roles and functions of the various agents involved in the dates commodity chain
- To assess the competitive and comparative advantage
- To improve competitiveness of Jordanian dates.

1.5 Study Structure

This study consists of five chapters. Chapter one includes the Introduction, Theoretical Background, Literature Review, Objectives and Study Structure. Chapter two contains "Agricultural Sector and Date Production in Jordan" which is divided into four major fields: Agriculture in Jordan, Resources, Production Sector and Dates Palm in Jordan.

Chapter three contains the Methodology of the study, which includes Data Collection, Study Area, Sampling, and Data Analysis which includes Descriptive Analysis, Policy Analysis Matrix, Value Added and Competitive Advantage indicators.

Chapter four entitled "Results and Discussion" it consists of two major sections. The first one is entitled "Descriptive Analysis" which includes Commodity Chain Agents which contain all agents in commodity chain of dates in Jordan, i.e. Dates Palm Farms, Commission agents, Retailers, Exporters, Importers and Final Consumers. The second section is "Analysis of competitiveness" which includes five domains. The first one is "Function Analysis" which includes function analysis for local and imported dates in Jordan. The second domain is entitled "Flow Charts of Commodity Chain for

Local and Imported Dates in Jordan" in addition to Marketing Channels for Medjool Variety (First and Second Class) and Barhi Variety (Balah). The third domain is entitled "Marketing Margins" for Medjool Variety (First and Second Class) and Barhi Variety (Balah). The fourth domain is entitled "Comparative Advantage Measures" which includes PAM Approach, through which Domestic Resources Cost Coefficient (DRC) and Social Cost Benefit Coefficient (SCB) were calculated. The fifth domain is entitled "Competitive Advantage Measures" which includes four measures: Trade Entropy Index, Constant Market Share (CMS) and Revealed Comparative Advantage (RCA) Balassa and Vollrath index.

Chapter five includes both the Conclusion and Recommendations. It talks about important points concluded from this study, and subsequence recommendations.

Chapter 2

The Agricultural Sector and Date Production in Jordan

2.1 Agriculture in Jordan

In 2008, the agricultural sector consumed around 75% of Jordan's scarce water resources, while in return it contributed around 2.6% of Gross Domestic Product (GDP), it increased into 3.01% in 2009. The agricultural exports in Jordan constituted about 11.4% of the country's exports. It employed around 8.9% of the country's labor force. The growth rate registered for the sector was only 0.17% in 2008, as compared with a growth of 13.5% in the previous year. The Jordan Valley is the center of Jordan's agricultural production; it focuses on the production of tomatoes, cucumbers, eggplant, and citrus fruits, melons, cabbages, bananas, potatoes and onions. (Hala, 2010)

According to the Department of statistics, the total cultivated area in 2009 was 2,241,907 Dunums which represents 2.51% of the total area.

2.2 Resources in Jordan

2.2.1 Water Resources

Jordan is one the poorest countries in the world in terms of water resources. The climate is generally arid. More than 90 per cent of Jordan's total area receives less than 200 millimeters rainfall per year, and more than 70 per cent of the country receives less than 100 millimeters of precipitation a year. Only around 2 per cent of the land area, located in the north-western highlands, has an annual precipitation exceeding 300 millimeters, though the northern highlands may receive as much as 600 millimeters. About 5.5 per cent of Jordan's area is considered dry lands with annual rainfall ranges from 200 to 300 millimeters. The pattern of rainfall is characterized by an uneven distribution over the various regions and strong fluctuations from year to year in terms of quantity and timing.

Jordan is characterized by a pronounced scarcity of renewable fresh water resources which averages at about 680 MCM per year or approximately 135 m^3 per capita for all uses. Thus, Jordan's water resources are, on a per capita basis, among the lowest in the world.

The water resources of Jordan consist of groundwater and fossil water which extend in aquifers in different depths throughout Jordan. Surface water flows from precipitation in the Jordan River Basin. from the increasing amount of treated waste water effluent and from non-conventional water resources such as brackish water. (Rahahleh, *et al*, 2007)

2.2.2 Land Resources

The total area of the country is 89.3 million dunums, where the total area of land is 88,884,000 dunums which is 99.61% of the total area of the country, and the total area of water surface is 329,000 dunums which is 0.37% of the total area of the country. (Department of Statistics, Jordan in Figures, 2008)

As previously mentioned, Jordan is divided into four main topographic areas: the continental region comprising Jordan River Valley, Wadi Araba and the Dead Sea, the highlands, and the dry land: (Chapin Metz, Helen, 1989)

The Jordan Valley: The Jordan Valley, which extends down the entire western flank of Jordan, is the country's most distinctive natural feature. The northern part of the Jordan Valley, known in Arabic as the Ghour, is the nation's most fertile region. It contains the Jordan River and extends from the northern border down to the Dead Sea. Several degrees warmer than the rest of the country. Its year-round agricultural climate, fertile soils, higher winter rainfall and extensive summer irrigation have made the Ghour the food bowl of Jordan. As for the Southern part of the Jordan Valley, located in west

Karak governorate, this region is famous for the cultivation of vegetables around of the year. The area of the southern Jordan valley is 465 km^2. This region is considered semi-flat area surrounded by mountains on both sides, and the Dead Sea is the most important geographical features as below the sea level approximately 410 m below the sea level.

Wadi Araba: South of the Dead Sea. This spectacular valley is 155 kilometers long and is known for the sheer, barren sides of its mountains. Its primary economic contribution is through potash mining. Wadi Araba rises from 300 meters below sea level at its northern end to 355 meters above the sea level at Jabal Risha, and then drops down again to sea level at Aqaba.

The highlands: The highlands of Jordan separate the Jordan Valley and its margins from the plains of the eastern desert. This region extends through the entire length of the western part of the country, and hosts most of Jordan's main population centers, including Amman, Agloun, Jarash, Irbid and Karak. It is well known that ancient peoples found the area inviting as well, since one can visit the ruins of Jerash, Karak, Madaba, Petra and other historical sites found in the Mountain Heights Plateau. These areas receive the Jordan's highest rainfall and are the most richly vegetated areas in the country.

The dry land (Albadia): Comprising around 75% of Jordan, this area of desert and desert steppe is part of what is known as the North Arab Desert. It stretches into Syria, Iraq and Saudi Arabia, with elevations varying between 600 and 900 meters above the sea level. Climate in the Badia varies widely between day and night and between summer and winter. Daytime summer temperatures can exceed 40°C, while winter nights can be very cold, dry and windy. Rainfall is minimal throughout the year, averaging less than 50 millimeters annually. Although all the regions of the Badia (or desert) are characterized by their harsh desert climate, similar vegetation types and

sparse concentrations of population, they vary considerably according to their underlying geology.

2.2.3 Human Resources

The total number of the population in Jordan at the end of year 2009 was 5,980,000, where the population density is 65.9 Person/km^2, and the population growth rate was 2.2% in 2008. (Department of Statistics, 2008).

The percentage of employment in the agriculture sector was 6.9% in 2002. As a result of the increasing in the demand for labor forces on other economic sectors, the percentage in this sector decreased to 2.6% in 2008, with 1.5% of skilled agricultural labor (Department of Statistics, 2008).

2.3 Production Sector

The Agricultural production in Jordan can be divided into two sub-sectors: the plant production which consists of fruit trees crops, field crops, vegetables and floriculture and livestock production which consists of red meat, poultry meat, milk and eggs. (Ministry of Agriculture, 2009)

2.3.1 Plant Production

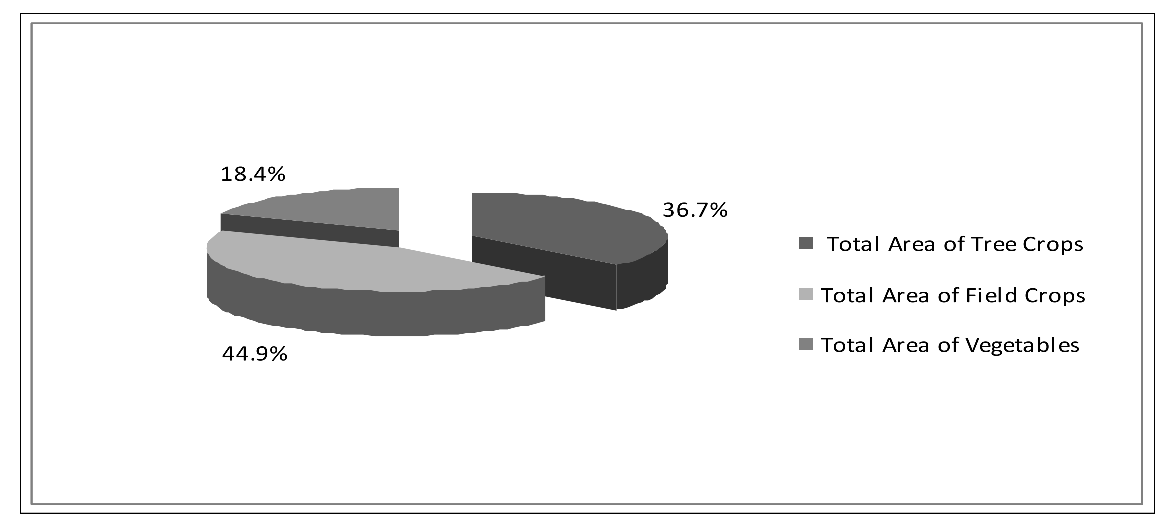
Table 1 shows that the total cultivated area in 2009 was 2,241,907 dunums which is divided into fruit tree crops, field crops and vegetables cultivation, where the field crops occupy the largest area.

Table 1: Total Cultivated Area in Jordan 2009

Area (du)	Jordan		Highland		Jordan Valley	
	Irrigated	Non-Irrigated	Irrigated	Non-Irrigated	Irrigated	Non-Irrigated
Total Area of Tree Crops	442,681	379,881	339,468	378,502	103,213	1,379
Total Area of Field Crops	116,834	890,715	88,816	888,264	28,018	2,452
Total Area of Vegetables	388,679	23,114	200,040	23,114	188,640	0
Total Area	**948,194**	**1,293,710**	**628,324**	**1,289,880**	**319,871**	**3,831**

Source: Department of Statistics, Agriculture surveys, Surveys, Crops statistics, 2010

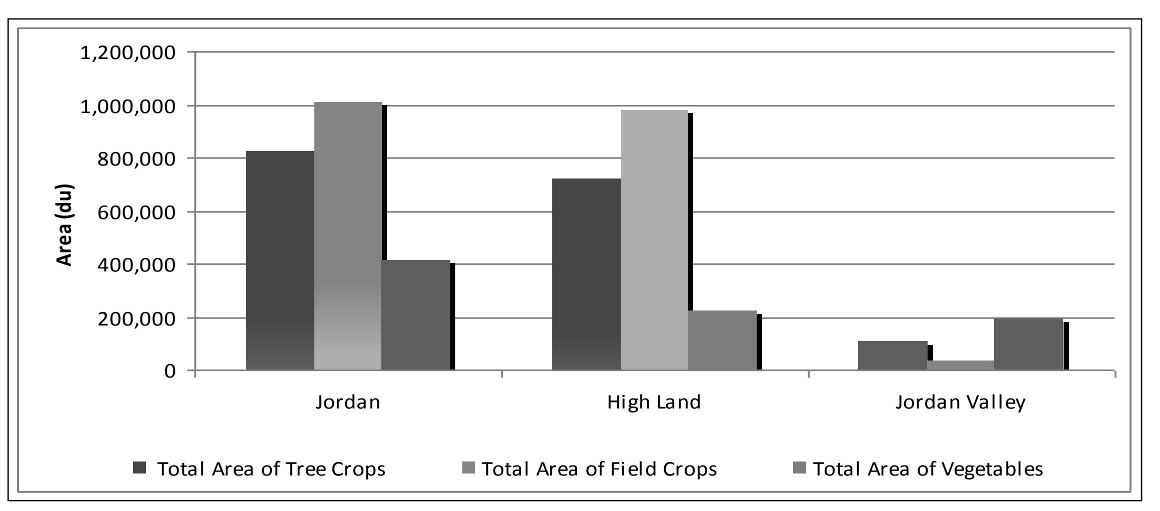
Figure 3 shows that field crops occupy the largest agricultural area in Jordan of 44.9%, then fruit trees and vegetables comes with 36.7% and 18.4%, respectively.



Source: Based on Table 1

Figure 3: Percent of Total Area for each Crop in Jordan (2009)

Figure 4 shows that the largest area planted in Jordan is located in the highlands, where field crops occupy the largest area; fruit trees and vegetables come after. Regarding the Jordan Valley, cultivation of vegetables occupies the largest area and then fruit trees and field crops.



Source: Based on Table 1

Figure 4: Total Cultivated Area in Jordan 2009

Regarding the foreign trade, the total plants products imports are JD 935.75 million which is 6.9% of the total imports, and total plants products exports are JD 320.36 million which is 3.7% of the total exports in 2009. (Ministry of Agriculture, 2009)

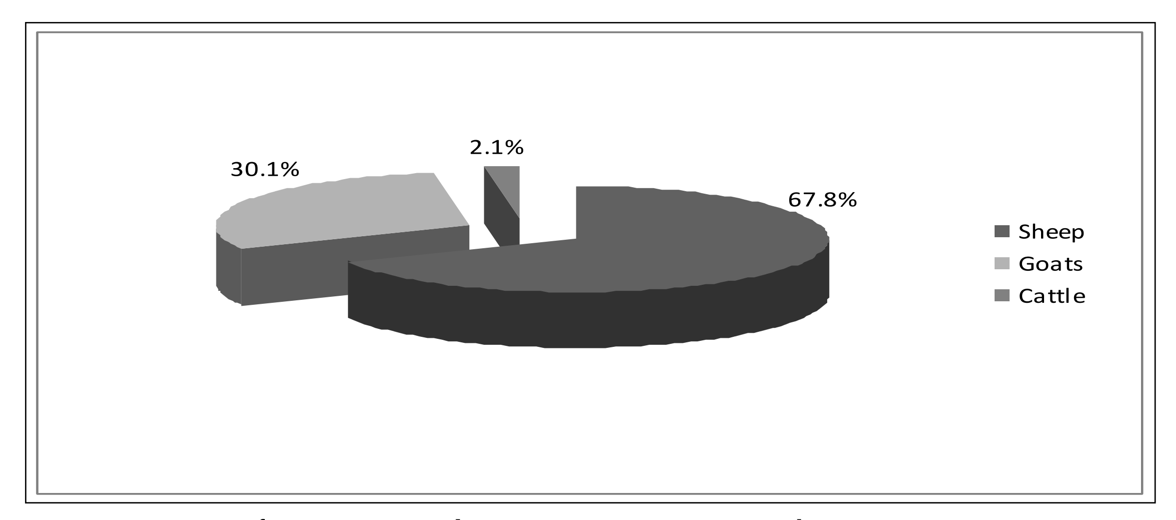
2.3.2 Livestock Production

Livestock is considered as a principle component of the agricultural sector in Jordan. Raising livestock for both meat and dairy products continues to be an important aspect of Jordanian rural life. Production in livestock contributes with about 55% of agricultural sector's contribution to GDP in 2008.

Livestock production consists mainly of red meat, poultry meat, milk and eggs. In contrast to plant production which decreased by 24% between 2007 and 2008. Livestock production has considerably increased in recent years with red meat production increasing by 58% in 2008, poultry production increasing by 3.5% and milk production increasing by 26%. The number of eggs produced has been increased by 13%. (Hala Helou, 2010)

The total number of sheep in 2009 was 2,070,930; the total number of Goats was 919,740, whereas the total number of Cattle was 64,520. (Department of Statistics, 2009)

Figure 5 shows that the sheep comprise the highest percentage of livestock in Jordan with 67.8%, then goats with 30.1%, and finally cattle in a small percentage of 2.1%.



Source: Department of Statistics, Agriculture surveys, Surveys, Livestock, 2010

Figure 5: Percent of each kind of Livestock in Jordan 2009

Regarding the Foreign trade, the total livestock imports are JD 365.99 million which is 2.7% of the total imports. Total livestock exports are JD 53.66 million which is 0.6% of the total exports in 2009.

2.4 Dates Palm Sector in Jordan

The Jordan date market, as in the most of the Muslim countries, has a high demand, concentrated in proximity of the period of the Ramadan. In fact, the Iftar, the traditional meal which ends the fasting, starts with dates i.e. since their nutritive qualities and lack of fats are considered the best food to regain strength.

The local demand of dates used to be totally satisfied from Saudi Arabia imports. Jordan started producing dates in the middle of the 1990s, mostly in the Jordan Valley, where water availability is higher than what is in the other regions. (UNIDO, 2005).

The commercial cultivation of date palm trees in Jordan is considered new, but it increased largely over the past ten years as they hit the area around (20000) dunums according to the Ministry of Agriculture in 2008 statistics as compared with (2194) dunums in 1995.

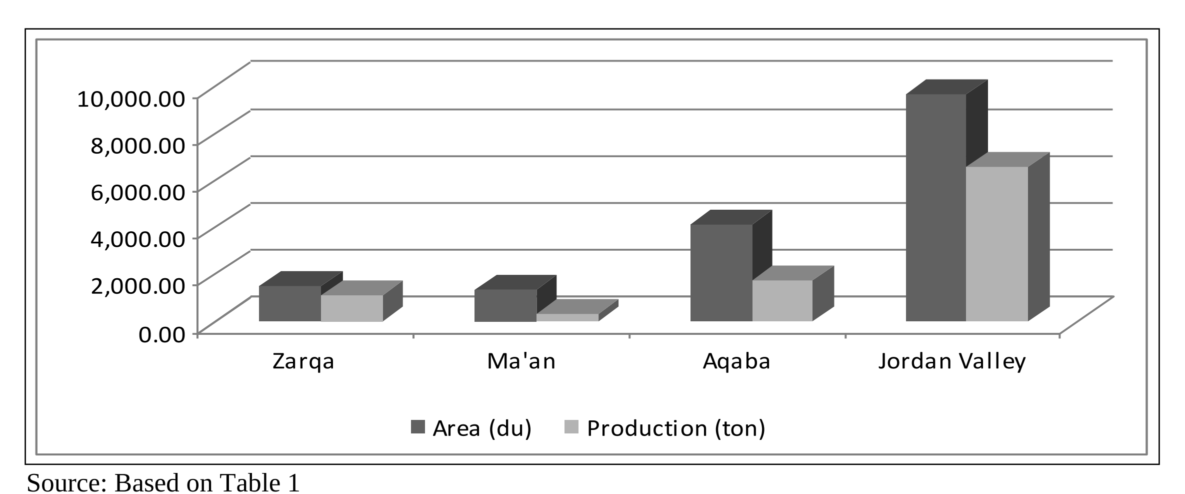
2.4.1 Locations

The dates palm sector in Jordan is considered small sector and it is concentrated in the Jordan Valley and the Aqaba Special Economic Zone. These two areas accounted for 85%, whereas the rest (i.e. 15%) are planted in the following areas: Al-Azraq area, Zarqa and the southern Jordan Valley area and so on. Since dates crop can tolerated drought and salinity, it could be considered as an alternative crop under these conditions in Jordan. The following map shows the location of dates palm cultivation regions in Jordan.

Source: Ministry of Agriculture, unpublished figure, 2009

Figure 6: Location of Dates Palm Cultivation in Jordan

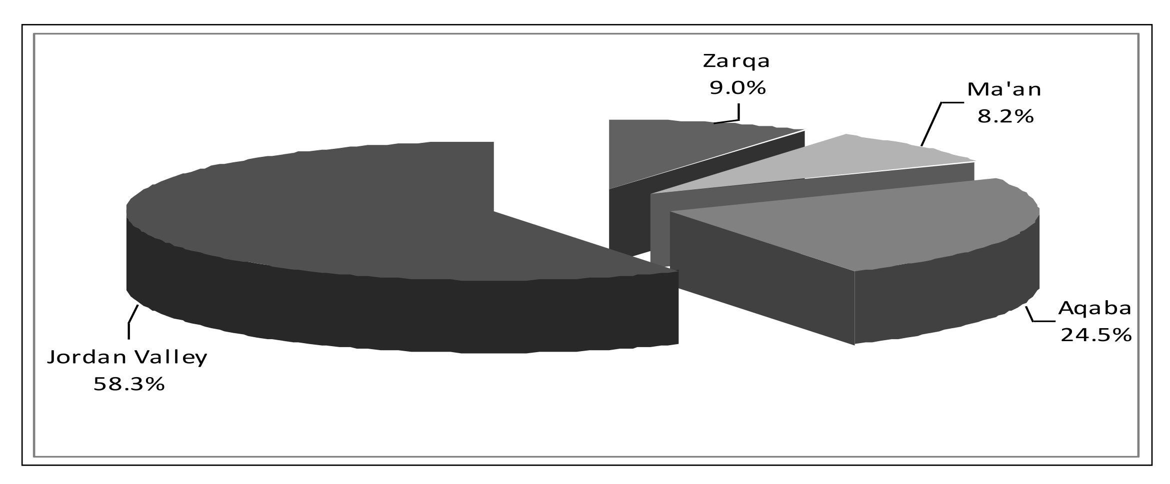
Figure 7 shows that the largest area planted with date's palm trees in Jordan are in the Jordan Valley region, where this area has about 9,703 dunums planted with date's trees with the highest production of date's palm of 6,571.80 tons, followed by Aqaba region.



Source: Based on Table 1

Figure 7: Area and Production of Dates Palm in Some Regions in Jordan (2009)

The Jordan Valley occupies about 58.3% of the total area planted with dates palm trees in Jordan, while Aqaba, Zarqa, Ma'an by 24.5%, 9.0%, 8.2%, respectively, as shown in figure 8.



Source: Based on Table 1

Figure 8: Percent of Dates Palm Area in Some Regions in Jordan (2009)

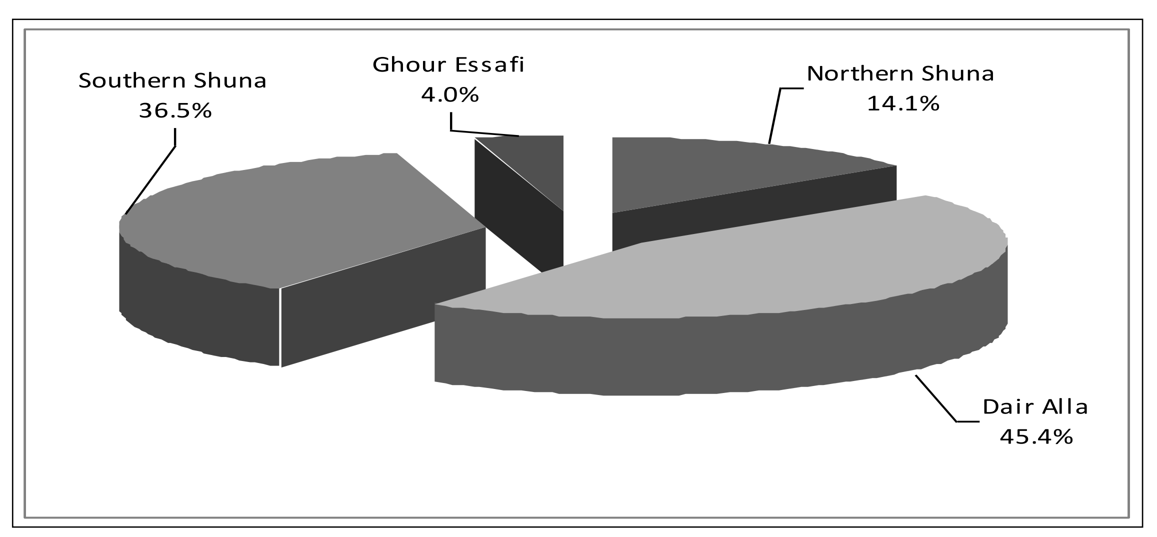
Table 2 and Figure 9 show that the area planted with dates palm trees in Deir Alla occupy the highest percentage with 45.4% of the total area planted with dates palm trees in the Jordan Valley.

Table 2: Area, Number of Bearing Trees and Production of Dates Palm in each Region in Jordan Valley 2009

Region	Area (du)	Number of Bearing Trees	Production
Northern Shuna	1,363.40	22,035	1,167.90
Dair Alla	**4,405.40**	**62,348**	**3,390.50**
Southern Shuna	3,544.90	36,247	1,812.30
Ghour Essafi	388.8	4,280	201.2
Total of Jordan Valley	**1,363.40**	**22,035**	**1,167.90**

Source: Department of Statistics, Agriculture surveys, Surveys, Crops statistics, 2010

In the Jordan Valley, dates palm cultivation is concentrated in Deir Alla, where the number of bearing trees is 62,348 within an area of 4,405.40 dunum, and the production is 3,390.50 tons in 2009, as shown in the figure 9



Source: Based on Table 2

Figure 9: Percent of Area for Dates palm in each Region in Jordan Valley

2.4.2 Area and Production

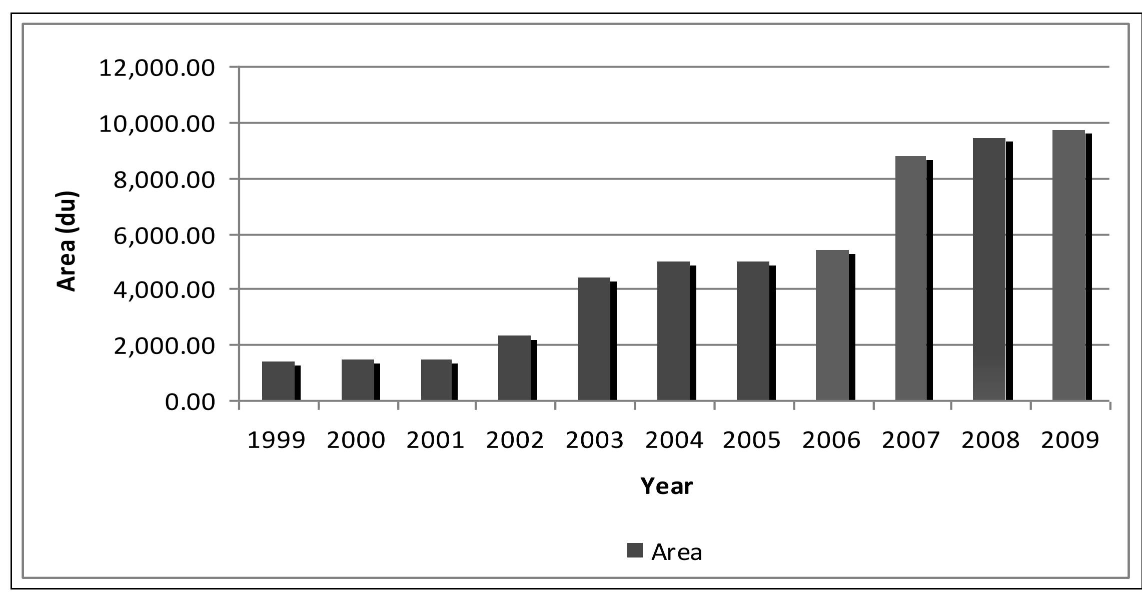
Table 3 shows the area, total number of trees, number of bearing trees and production of dates palm during the period 1999-2009. Figure 10 shows that the area

planted with dates palm is gradually increasing, where during the period 2006-2007 it is exponentially increasing.

Table 3: Area, Number and Production of Dates Palm Trees in Jordan Valley (1999-2009)

Year	Area	Total Number of Trees	Number of Bearing Trees	Production
1999	1,339.40	26,380	16,498	635.8
2000	1,469.00	27,935	21,259	960.4
2001	1,469.00	27,935	22,236	975.8
2002	2,284.30	46,826	26,098	1,298.10
2003	4,363.50	69,319	29,083	1,433.40
2004	4,949.00	76,429	49,780	3,226.40
2005	4,949.00	76,429	49,780	2,514.00
2006	5,361.00	81,901	53,567	2,963.90
2007	8,748.50	156,031	90,704	4,462.10
2008	9,394.50	164,695	106,688	5,665.00
2009	9,702.50	169,862	124,910	6,571.80

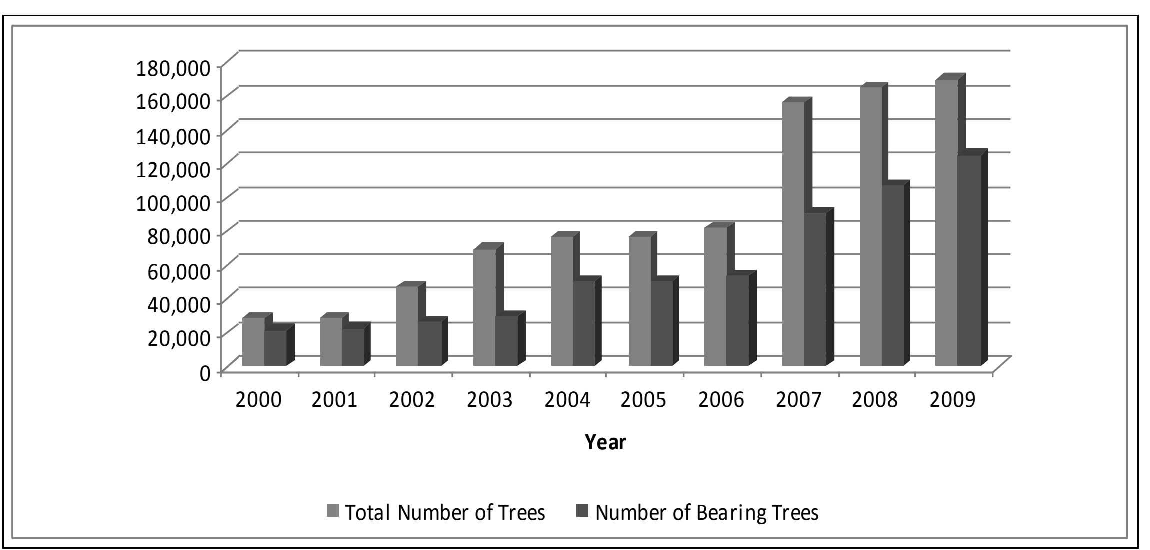
Source: Department of Statistics, Agriculture surveys, Surveys, Crops statistics, 2010



Source: Based on Table 3

Figure 10: Area of Dates Palm in Jordan Valley (1999-2009)

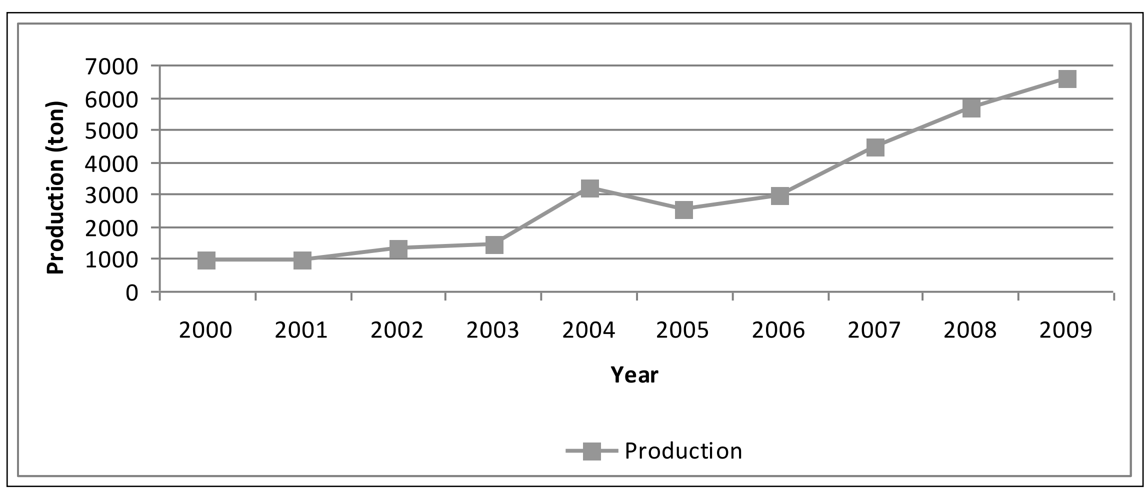
Figure 11 also shows that the number of trees increases also in accordance with the planted area with date's palm.



Source: Based on Table 3

Figure 11: Total Number of Dates Palm Trees in Joradn Valley (1999-2009)

Concerning the production, Figure 12 shows that the trend of production is gradually increasing. In 2004 there was a sudden and significant increase in production, but it declined in the next year (2005). Then, the production turned back to a continuous increase in the years 2005-2009, faster than the previous years did i.e. 1999-2003.



Source: Based on Table 4

Figure 12: Trend of Dates Palm Production (1999-2009)

2.4.3 Foreign Trade

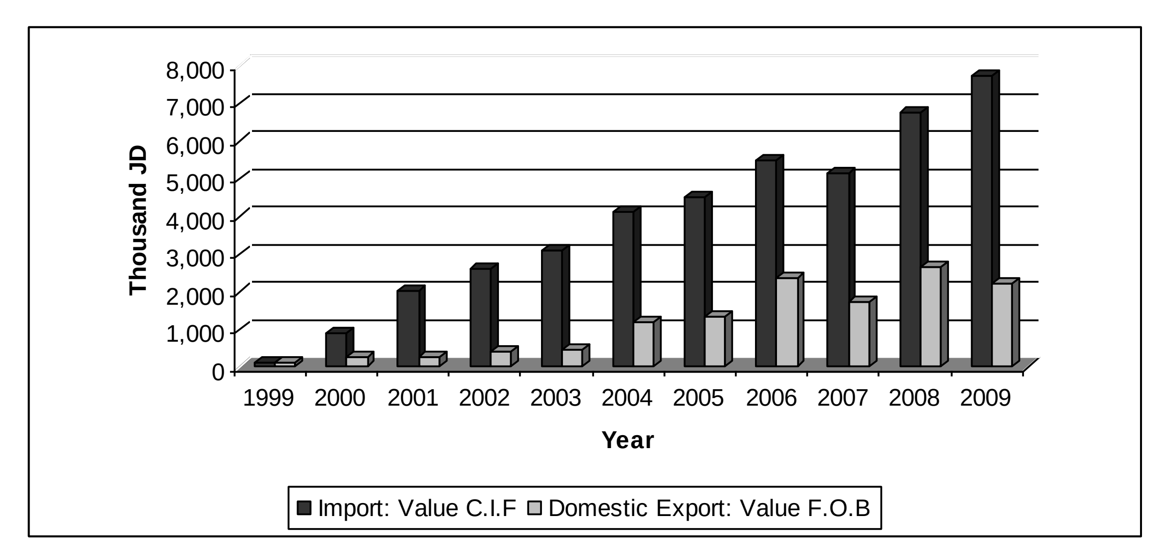
The following table shows the foreign trade for dates palm in Jordan during the period 1999-2009.

Table 4: Foreign Trade of Dates in Jordan (1999-2009)

Year	Import: Value C.I.F. in J.D.	Import: Quantity	Domestic Export: Value F.O.B. in J.D.	Domestic Export: Quantity	Total Export: Value in J.D.
1999	129,434	429,563	111,972	155,897	111,972
2000	903,441	1,577,160	279,699	538,566	281,472
2001	2,024,593	3,454,207	266,479	573,679	335,349
2002	2,626,650	7,058,647	405,539	991,787	550,655
2003	3,111,993	6,602,759	476,464	1,164,144	634,023
2004	4,126,748	9,561,122	1,198,115	2,155,753	1,244,392
2005	4,528,686	9,555,842	1,342,091	1,873,565	1,527,631
2006	5,497,934	10,701,945	2,352,917	1,836,223	2,588,531
2007	5,135,483	8,533,726	1,711,392	2,191,943	2,073,449
2008	6,767,906	9,929,893	2,666,487	2,759,794	2,893,497
2009	7,724,698	9,753,461	2,211,892	1,907,134	2,247,571

Source: Department of Statistics, Economic, Economic statistics, Foreign Trade, Yearly, 2010

Figure 13 shows the value of imports in CIF prices and the value of exports in FOB prices. The import value increases over the years, whereas the export value oscillates, but the highest value was in 2008, figure 13 also shows that the value of imports are higher than the value of exports.



Source: Based on Table 4

Figure 13: Imports and Exports Value of Dates in Jordan (1999-2009)

2.4.4 Varieties

Table 5 shows the varieties of dates in Jordan and the Productivity, Maturity date and uses for each variety. (Ministry of Agriculture, 2009).

Table 5: Varieties of Dates in Jordan and Productivity, Maturity date and Uses

Variety	Productivity (kg/tree)	Maturity date	Uses		
			Balah	Rutab	Tamr
Medjool	70-80	Late			√
Barhi	80-120	Moderate –Late	√	√	√
Dejlet Nour	60-80	Moderate –Late			√
Khadrawi	40-60	Moderate		√	√
Boma'an	50-70	Moderate		√	√
Khalas	40-60	Moderate		√	√
Zahidi	40-60	Moderate		√	√
Sokari	50-70	Moderate		√	√
Maktomi	40-60	Late		√	√
Zaghlool	80-100	Moderate	√		√
Talal Red	100-130	Early		√	
Khestawi	150-160	Moderate		√	√
Hayyani	75-150	Early	√	√	

2.4.4.1 Medjool Dates



The Medjool Date Palm Tree is the kind of palm tree found in a desert oasis. The Medjool Date Palm is also the kind of palm tree found lining avenues in the hot, dry climates. Medjool Date Palms grow slowly to a height of 70 feet and more in the appropriate growing conditions. The appropriate growing conditions mean hot, sunny, and less humid and with a good, steady supply of water to the roots. The Medjool Date Palm adds 6" or less per year in height. This tree often grows several trunks from a single root system. The span of the leaf crown may reach 30 feet in diameter. Also known as the “King of Dates” due to its rich taste, size and texture, it is marketed as semi-dried fruits.

2.4.4.1.1 Features of Medjool Tree

- Dark green colored tends to blue.
- Medjool tree has many shoots.
- The leaves are dark green colored with a size that varies from short to mid-sized.
- The productivity of mature tree is 70-80 kg yearly.
- Medjool tree has late maturity date.
- This variety is affected by rain but resistant to salinity, wind and dryness.
- The diameter of palm trunk is 18 – 20 inch, on average.

2.4.4.1.2 Features of Medjool Fruits

- A large, oval-shaped, soft date, with a meaty fruit.
- Fruit length is 3.7 cm, and diameter is 2 - 3 cm and fruit weight between 20 - 34 g.

- When storing, the validity period is:

    - One month at room temperature.

    - Three to six months in refrigerator at 5 C^{o}.

    - Six month to one year in refrigerator at $^{-}$10 - $^{-}$18 C^{o}.

2.4.4.2 Barhi Dates



Barhi date is immensely popular and a stable food in the Arab world since it is native to the Persian Gulf, dating back to at least several thousand years BC. It had spread to most of the tropical countries where there is plenty of direct sunlight.

Barhi date is one of the popular and common dates among the numerous cultivars; "numerous" because there are several thousands of them, but most of them are virtually unknown. They are not commercially available because the taste is considered inferior.

Barhi date can be eaten when raw and semi-ripe (Khalal). In raw stage, it is golden yellow or amber and it is crispy and crunchy, similar to eating an apple. The taste is slightly sweet.

It will turn brownish and soft with the skin peeling off, when it is ripe (Rutab) and it tastes sweet and juicy. This type of dates are usually eaten fresh or at least, in the ripe stage and seldom in the final dried, wrinkled (Tamr) stage. At any stage, no peeling is required; just eat it as marketed as fresh branches or dried fruits.

2.4.4.2.1 Features of Barhi Tree

- The leaves are green colored with some curvature.

- Leaves length is 3.8 - 4.45 m in average.

- Barhi tree tolerates dryness and salinity up to a certain degree.

- The productivity is 80 - 120 kg/year.

- Number of shoots is between 6 - 8.

- The palm trunk is thick and solid.

2.4.4.2.2 Features of Barhi Fruit

- Nearly cylindrical, yellow, medium-sized date is tangy when fresh and sweet when dried.

- Barhi fruit length is 3.2 – 3.7 cm, and the diameter is 2.3 cm.

- Barhi fruit is soft.

2.4.5 Private Sectors Institutions for Dates in Jordan

2.4.5.1 Jordan Dates Producer and Marketing Association (JODA)

The JODA was established in 2005. The vision of association is to find innovative and effective date's sector that produces, manufactures, markets dates, and achieves a good return for the farmers. The mission of this association work to improve the production of Jordanian dates to get excellent and high quality of dates.

There are many objectives or targets for this association:

- To establish and improve the infrastructure for this sector
- To marketing the products of the members locally and internationally
- To transfer production technology, manufacturing and marketing of dates
- To promote of Jordanian dates
- To coordinate with Arabian and international dates associations.

2.4.5.2 Jordan Palm Association (JPA)

The JPA is considered as the only institution specialized at cultivating palm trees for all kinds and sizes. This association carries out these acts in institutional, not individual form in order to enable all dates palm farmers to get benefit their agricultural projects and to take advantage of correct, efficient, developmental and productive crop.

There are many objectives or targets for this association:

- To prepare and process the land to be planted
- To establish farm ponds or pools of water for irrigation purposes
- To establish irrigation systems by modern technologies
- To cultivation correctly in a way which includes taking into consideration the weather and time suitable for agriculture
- To supervise the continuous follow-up of the field
- To train farmers how they can control dates palm pests

2.4.6 SWOT Analysis for Dates Sector in Jordan

SWOT analysis is used to identify and analyze the Strengths and Weaknesses of organization as internal environment, as well as the Opportunities and Threats revealed by gathering information on the external environment. This Analysis is used to develop a plan that takes into consideration many different internal and external factors, maximizes the potential of the strengths and opportunities, and minimizing the impact of the weaknesses and threats. This type of analysis is used to develop a strategic plan to a problem (MSH and UNICEF, 1998). Table 6 summarizes the SWOT analysis for Dates Sector in Jordan.

Table 6: SWOT analysis for Dates Sector in Jordan

STRENGTHS	WEAKNESSES
- Proximity to the foreign markets - High quality of Jordanian dates - The most of varieties are demanded globally (such as Medjool)	- High investment costs - Low branding and marketing - Lack of farmers interest in post-harvest technology - Lack of access to the certificates that required globally
OPPORTUNITIES	**THREATS**
- High growth rate in the dates production - High growth in the dates markets demand - Support from the Ministry of Agriculture - Consumers ask for high quality varieties of dates - R & D expenditure in dates palm sector - Climate is suitable for growing dates palm	- Strong competition from some countries - Costs of shipping and international transportation are high - High currency exchange rate - Difficulty in obtaining certificates to access Europe markets

Chapter 3

Methodology

3.1 Data Collection:

The tentative marketing channels for dates are shown in the Figure 14. The General marketing channel shows the flow of the product till it reaches the final consumer. First, for local dates Production, most of the locally produced dates goes to the commission agents at the wholesale market; the second major destination of lacal dates production goes to the exporters, and a few of the dates goes directly to the retailers and final consumer. The commission agents market dates to retailers who sell them to the final consumers. Jordan dates imports are directly sold to the retailers or to the retailers through the commission agents.

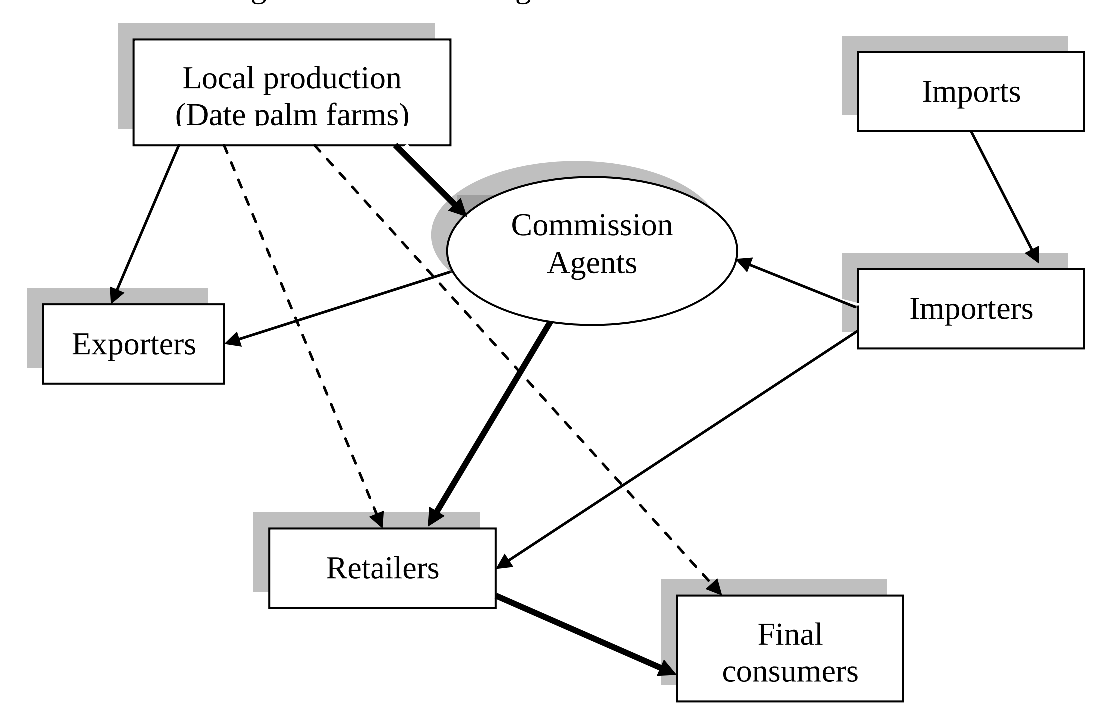


Figure 14: Marketing Channels for Dates in Jordan

3.1.1 Primary Data:

Representative data samples were collected from the following Market Agents:

3.1.1.1 Date palm farms:

There are 325 date palm farms in Jordan. Aqaba and Jordan Valley regions were selected as the area of the study. They contribute with 85% of the date palm trees

planted in Jordan. The Medjool and Barhi varieties were chosen since as they are considered of the most important varieties planted in Jordan.

3.1.1.2 Importers:

It is known that Jordan is mainly dependent on the import of the date palm from Saudi Arabia, Iraq and the Gulf countries.

3.1.1.3 Exporters:

Dates are exported to the European countries and some Arab countris, especially the Medjool and Barhi varieties. The source of the export might be the farms, or the exported dates could be supplied from the farms to dates exporters.

3.1.1.4 Commission Agents:

Commission agents at the wholesale market get dates from the local production through date palm farms or from imports through importers and then distribute dates to retailers.

3.1.1.5 Retailers:

Retailers get dates from the local production through date palm farmers, commission agents, or importers, where the retailers deliver dates to the final consumers.

3.1.2 Secondary Data:

The secondary data was from: The Ministry of Agriculture (MOA), Department of Statistics (DOS), Jordan Customs, Jordan Date Palm Association, Jordan Exporters and Producers for Fruits and Vegetables Association (JEPA), Jordan Dates Producer and Marketing Association (JODA), Food and Agriculture Organization Statistical Database (FAOSTAT) and International Trade Center (ITC) Reports. The general

information was derived from the date palm sector in Jordan and the methodology that will have been used.

3.1.3 The Study Area and Sampling

Field Surveys were conducted for more than one destination in order to include all agents in a commodity chain of dates. These agents are: farmers, commission agents, retailers, exporters, and importers.

3.1.3.1 Farmers

Farmers were selected from the Jordan Valley and Aqaba regions, but the Aqaba region was excluded because there were many reservations from most farmers in this region to give any data on their farms. So a survey has been conducted for all Jordan Valley dates palm farms which are specialized at the cultivation of Medjool and Barhi varieties only. The number of farms covered by the survey in the sample was 96 farms.

The questionnaire which was designed and tested was concerned with the production inputs, costs, yield, market channels and margins, and exportation of date's palm.

3.1.3.2 Commission Agents

Regarding Commission agents at the wholesale market, a survey has been conducted for all the commission agents at the wholesale market. The number of the commission agents covered by survey was 33 commission agents.

The questionnaire asks general information for the commission agents, such as the varieties they market, quantities, marketing cost and sales.

3.1.3.3 Retailers

Retailers include grocery, fruit and vegetables stores. The Stratified Random Sample was selected in two stages:

First, Selecting the strata: where the retailers population was divided into 3 categories according to the income level of the consumers , high medium and low. The area of each category was selected, and the sample was as follows:

Sweifieh is considered as high-income level, Jabal Al-Hussain as middle-income level and Jabal Al-Nasser as low-income level.

Second, the sample from each category (stratum) was selected based on Systematic Random Sample Method as shown in table 7.

Table 7: Retailers Sample

Region	No. of Grocery Store	No. of fruit and vegetables stores	Total
Sweifieh	15	8	23
Jabal Al-Hussain	25	15	40
Jabal Al-Nasser	16	10	26
Total	56	33	89

The questionnaire was prepared for these retailers. It concentrates on the source of the date palm, distribution, marketing costs and demand on date's products.

3.1.3.4 Importers

The study met 12 importers who import dates and accept to fill the questionnaire. The questionnaire asks general information for the source of their imports, the orientation to whom they distribute, and the quantity imported.

3.1.3.5 Exporters

Regarding exporters, the study met 15 exporters who export dates and accepted to fill the questionnaire. The questionnaire asks general information for the exporters,

source of dates, orientation to whom do they export, the quantity exported, and shipping.

3.2 Data Analysis:

3.2.1 Descriptive Analysis:

The main measure of central tendency was used: i.e. the arithmetic mean.

3.2.2 Policy Analysis Matrix (PAM):

The following table shows all the entries for a PAM:

Table 8: Policy Analysis Matrix

	Revenues	Costs of Tradable Inputs	Costs of Domestic Factors	Profits
Private Prices	A	B	C	D
Social prices	E	F	G	H
Effects of divergences and efficiency policy / Transfers	I	J	K	L

Source: Monk. E. and Pearson. 1989. The policy Analysis Matrix for Agricultural Development, Cornell University Press, Cornell, USA.

In the first row, the PAM contains measures of prices in private prices (the observed market prices). The symbol A measures revenues in private prices, whereas the symbol B stands for tradable input costs in private prices. The symbol C represents domestic factor costs in private prices, and the symbol D is private profit, which is identically equal to A - (B + C).

In the second row, the PAM contains measures of prices in social prices (prices that would result in the best allocation of resources and thus the highest generation of income).

The symbol E measures revenues in social prices; the symbol F stands for tradable input costs in social prices. The symbol G represents domestic factor cost in social prices, and the symbol H is social profit, which is identically equal to E - (F + G).

The third row of the matrix is the effects of divergences row. These divergences arise from either distorting policies or market failures. Either source of divergence causes observed market prices to differ from their counterpart efficiency prices.

The symbol I measures divergences in revenues (caused by distortions in output prices); the symbol J stands for divergences in tradable input costs caused by distortions in tradable input prices). The symbol K represents divergences in domestic costs (caused by distortions in domestic factor prices), and the symbol L is the net transfer effect (arising from the total impact of all divergences).

All entries in the PAM matrix under the third (defined as effects of divergences) are identically equal to the difference between entries in the first row (measured in private prices) and entries in the second row (measured in social prices). Therefore, I is identically equal to (A - E), J is identically equal to (B - F), K is identically equal to (C - G), and L is identically equal to (D - H). (Hindi, 2004)

In this study the Domestic Resource Cost Ratio (DRC) = G / E – F will only be used in order to determine if the production of a specific crop makes efficient use of the domestic resources. It could also be utilized from to estimate the comparative advantage of a specific crop in a particular region. (Masters and Alex, 1995)

If DRC > 1, Comparative Disadvantage

DRC < 1, the country has a comparative Advantage in producing that commodity.

Another measure to the comparative advantage is the Social Cost Benefit (SCB) which an alternative for DRC for measuring the comparative advantage. The SCB is a superior measure for the comparative advantage than the DRC, since the latter overstates the relative profitability of producing and trading goods that use intensively

tradable inputs in production. The SCB is defined by the ratio of total resources cost (costs of tradable inputs plus the costs of domestic factors) divided over the revenue at social prices. The SCB provides more accurate rankings than the other alternative activities do when using the comparative advantage of production. As with the DRC, a lower (higher) SCB value for good A than for good B means that the country has a comparative advantage (comparative disadvantage) in A relative to B. (Esmaeili, 2008)

If SCB > 1, the country is cost- uncompetitive in the good.

SCB < 1, the country is cost- competitive in the good.

3.2.3 Value Added (VA)

Value added (VA) is defined by the equation: VA = Y - II

Where: Y: Value of the output,

II: Value of intermediate inputs used.

The difference between VA and expenditure on labor, interest charges and taxes is termed as gross profit (GP). **GP = VA - (wages and salaries + interest charges + taxes)**

* VA is composed of four elements:

1. Personnel remuneration,
2. Interest charges,
3. Taxes and duties, and
4. A balance, called the gross profit, representing the return (or loss) to the activity under consideration.

3.2.4 Competitive Advantage

3.2.4.1 Trade Entropy Index (TEI)

In this research the first equation (i.e. the export equation) will be used:

$Ixi = aijln\ (1/aij)$ with $0 < aij < 1$ and $\Sigma\ aij = 1$

$Imi = b\ ln\ (1/b_{ij})$ with $0 < bij < 1$ and $\Sigma\ bij = 1$

Where: Ixi: Entropy index of export.

Imi: Entropy index of import.

aij: Export share of country i to country j.

bij: Import share of country i from country j.

3.2.4.2 Constant Market Share (CMS)

The underlying assumption of the CMS approach is that base period export shares are maintained in other market periods. The structural components of the market share are calculated under this assumption. The following equation was used:

$q1 - q0 = S0\ (Q1-q0) + \Sigma i\ (S0i - S0)\ X\ Q1i + (q1 - \Sigma_i\ S0i - S0i)$

Where: q: quantity of an exporter country's exporters of a commodity to the destination markets

S: An exporter country's market share of total exports of the commodity to the destination markets

Si: An exporter country's market share of total exports of the commodity to each destination markets, (i=1, 2 ... n)

Q: the quantity of total exports of the commodity to the destination markets

Qi: the quantity of total exports of the commodity to each destination market; and superscripts 0 and 1 to the base period and subsequent period respectively.

This equation indicates that changes in quantity of an exporter country's exports of the commodity to the destination markets between the two periods (q1-q0) can be decomposed into the three terms on the right hand side of the equation, representing the size of market effect, the market composition effect, and the competitive effect, respectively.

3.2.4.3 Revealed Comparative Advantage (RCA)

Balassa (1965) was the first to develop a measure of RCA. Revealed Comparative Advantage can be written as:

$$\mathbf{RCA} = \frac{X_{ik} / X_i}{X_{wk} / X_w}$$

Where: X_{ik}= Country i's export of goods K

X_i= Country i's exports of all goods

X_{wk}= World exports of good k

X_w= World exports of all goods

If RCA > 1, Comparative Advantage revealed.

RCA < 1, No Comparative Advantage revealed.

3.2.4.4 Revealed Comparative Advantage (RCA), Vollrath

Vollrath (1991) offered three alternative specifications of revealed Vollrath comparative advantage, following analyses of international competitiveness.

This measure is the relative trade advantage (RTA), which accounts for imports as well as exports. It is calculated as the difference between relative export advantage (RXA), which equates to the Balassa index and its counterpart, relative import advantage (RMA) as follows:

RTA = RXA – RMP

Where: RXA = Revealed Relative Comparative Advantage Export Index

RMP = Revealed Relative Import Penetration Index

Revealed Relative Comparative Advantage Export Index is defined as a country's export share relative to all other countries export of the specific product category.

RXA = RCA (B)

Revealed Relative Import Penetration Index is defined as a country's import share relative to all other countries imports of the specific product category.

$$\mathbf{RMP} = \frac{\mathbf{Mik / Mi}}{\mathbf{Mwk / Mw}}$$

Where, M represents the imports.

If RTA > 0 the goods have certain competitive advantages;

RTA < 0 the goods do not have competitive advantages.

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Chapter 4

Results and Discussion

4.1 Descriptive Analysis

4.1.1 Commodity Chain Agents

4.1.1.1 Dates Palm Farmers

4.1.1.1.1 Location

Figure 15 shows that the most of the dates palm farms are located in the Jordan Valley, specifically in Dair Alla region. 59.4% of the sample was taken from this region and from the Al-Karamah region of 31.2% and 9.3% is distributed in the Northern and Southern Shouna, respectively.

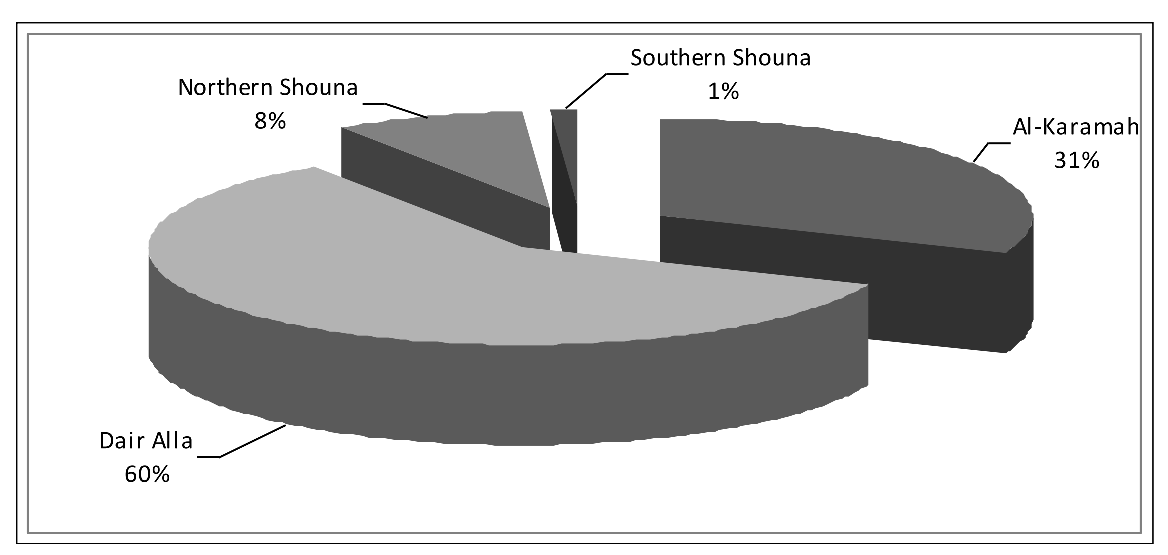


Figure 15: Location of Dates Palm Farm in the Jordan Valley

4.1.1..1.2 Varieties and Productivity

Table 9 shows that the Barhi variety occupies the highest percentage in the sample (47%), followed by Medjool variety (43.3%), but Dejlet Nour variety occupies a small percentage with 4.3% (therefore it is excluded from this study), and the rest of the varieties such as Khalas, Khestawi, Hayyani, and others constitute 5.5% of the sample.

Table 9: Distribution of Farms Producing Different Dates Varieties Planted in Jordan Valley

Variety	Percent (%)
Madjool	43.3
Barhi	47.0
Dejlet Nour	4.3
Other	5.5
Total	100

The productivity of mature Barhi tree ranges between 80-120 kg\years, while the productivity of Medjool tree ranges between 70-80 kg\years. The Price of Barhi seedling ranges between 20-30 JD, whereas for Medjool seedling the prices range between 30-50 JD.

4.1.1.1.3 Marketing Channels and Margins

4.1.1.1.3.1 Grading and Packaging Line

Table 10 shows that few of the farms have grading and packaging lines, (5.2% of the sample). These farms are large ones because of the high cost of this line, approximately JD 200,000 as investment cost, and the operational costs ranges between 80-1000 JD\month including the cost of electricity and maintenance in addition to labor wages who work on this line. The operational cost ranges between 30-60 JD\ton.

Table 10: Owning the Grading and Packaging Line

	Frequency	Percent (%)
Have Grading and Packaging Line	5	5.2
Do not have Grading and Packaging Line	91	94.8
Total	96	100.0

4.1.1.1.3.2 Post-harvest Process

Table 11 and Table 12 show that all of farmers who cultivate Medjool variety clean the fruits, and 76% of the farmers who cultivate Barhi variety clean the fruits. The

rest do not practice cleaning the fruits, but they sell it as bundles (Kattof), putting it in polystyrene boxes with a weight of approximately 25 kg with cost 0.13 JD/box.

Table 11: Cleaning Medjool Variety

	Frequency	Percent (%)
Clean Medjool Variety	70	72.9
Do not Plant Medjool Variety	26	27.1
Total	96	100.0

Table 12: Cleaning Barhi Variety

	Frequency	Percent (%)
Clean Barhi Variety	73	76.0
Do not Clean Barhi Variety	4	4.2
Total	77	80.2
Do not Plant Barhi Variety	19	19.8
Total	96	100.0

Table 13 and Table 14 show that the type and capacity of containers used by farmers vary according to the date's variety, but most-often cardboard containers were the ones used, where 59.5% of Medjool variety is packed in cardboard containers with different capacities ranging between 0.250-5 kg. About 41.5% of the used containers are of the capacity of 1 kg.

Also, the plastic containers used are of the capacity of 1 kg but in less percentage. Regarding Barhi variety, the major containers used are cardboard containers, with percentage of 56.1% with different capacities, but the most widely used containers are with capacity of 1 and 5 kg with the percentage of 34.4% and 40.6%, respectively.

Table 13: Type of Container for each Dates Variety

Type of Container	Medjool Variety	Barhi Variety
	Percent (%)	Percent (%)
Plastic	27.0	25.6
Cardboard	59.5	56.1
Polystyrene	12.2	14.6
Nylon Bags	1.4	3.7
Total	100	100

Table 14: Capacity of Container for each Dates Variety

Capacity of Container (kg)	Medjool Variety	Barhi Variety
	Percent (%)	Percent (%)
0.250	6.2	-
0.500	10.8	3.1
1.000	41.5	34.4
3.000	12.3	10.4
5.000	27.7	40.6
25	1.5	11.5
Total	100	100

The price of cardboard containers with capacity of 1 kg ranges between JD 0.15-0.50, and the price of containers with capacity of 5 kg ranges between JD 0.45-0.65. This depends on the quality of cardboard and the quantity ordered by the farm. The price of plastic containers with capacity of 1 kg ranges between JD 0.15-0.40, and the price of containers with capacity of 5 kg ranges between JD 0.35-0.60, depending on the quality of plastic and the quantity requested by the farm.

Table 15 shows that 95.7% of the farms grade and sort Medjool according to size; 17.9% of them use automatic grading system, while 82.1% of them use manual grading system. With respect to Barhi variety, 85.3% of farms conduct the grading process, but the grading system use is mostly the manual system, where a percentage of 89.2%, and only 10.8% is used the automatic grading system.

Table 15: Grading of each Dates Variety and Grading System Used

	Medjool Variety	Barhi Variety
	Percent (%)	**Percent (%)**
Grade	95.7	85.3
Do not Grade	4.3	14.7
Total	100	100
Manual System	82.1	89.2
Automatic System	17.9	10.8
Total	100	100

The products are usually graded regardless of the variety, but there are some losses that can not be marketed. The average loss percentage in Medjool variety is about 3%, and for Barhi variety the average loss is about 5%. The losses percentage in Barhi is higher than Medjool variety.

Grading and sorting average cost is 45 JD/ton, where it requires 5-7 laborers getting 80-10 JD/day.

4.1.1.1.3.3 Storage:

Table 16 shows that only 33.3% of the farms have storage facilities for their products, and all the farms conducting the storage use refrigerator stores. Medjool variety can be stored for one year if stored under -18 C^o, whereas Barhi variety is not usually stored since if it stored it last for few days only.

Table 16: Storage of Dates in Farms

	Frequency	Percent (%)
Store	32	33.3
Do not Store	64	66.7
Total	96	100.0

The cost of storage is approximately 4 JD/ton; it is possible that there are losses or waste during storage which is estimated at 0.5%.

4.1.1.1.3.4 Transportation:

Dates of different varieties are usually transported in trucks with different capacities to different destinations. If the dates were intended for export, they are transported by refrigerated trucks either to the airport or to the imported country.

Transportation costs depend on the distance and ownership of transportation facility, transport costs paid by the farmers who own the transportation facility are less than farmers who rent transportation facility. 51.8% of the farmers have their own transportation facilities. The transportation cost in the case of owned vehicles is 4.80 JD/ton, but it in the case of rental vehicles is 12 JD/ton.

The percentage of waste and loss during transportation is small (approximately 0.1%).

4.1.1.1.3.5 Market Fees:

The wholesale market's fees are 15 JD/ton for fruits and 10 JD/ton for vegetables. Since dates are classified as fruits, the market fees are 15 JD/ton paid by farmers who market their production at the wholesale market and the retailers who buy the dates from the wholesale market. Those fees are equally divided between the farmers and the retailers.

The Commission agents get usually 5-6% of the value of sales as a commission from the farmers.

4.1.1.1.4 Sales

4.1.1.1.4.1 Dates Destinations:

The highest percentage of the Medjool variety sales are sent to the wholesale market, then to exporters, retailers and farm gate with the percentage of 39%, 25.7% 23.8% and 11.4%, respectively.

For the Barhi variety, the highest percentage of sales is sent to wholesale market, then to exporters, retailers, farm gate with the percentage of 55%, 21.1%, 11.9% and 11.9, respectively as shown in table 17

Table 17: Destination of each Dates Variety from Farms

Dates Destination	**Medjool Variety**	**Barhi Variety**
	Percent (%)	**Percent (%)**
Farm Gate	11.4	11.9
Wholesale Market	39.0	55.0
Exporters	25.7	21.1
Retailers	23.8	11.9
Total	100	100

4.1.1.1.4.2 Prices:

Dates prices vary according to variety, grade, quality and destination. Regarding the Medjool, the variety varies in prices; its farm gate price is 2.50 JD/kg. The price at the wholesale market ranges between 2-6 JD/kg and its average price is 3.65 JD/kg for the second and third class. The average price charged by retailers is 6.35 JD/kg, and the exporting prices are the highest with 12 JD/kg in some cases and with an average price of 8 JD/kg.

The prices of Barhi variety are less than the prices of Medjool variety. In addition, they vary according to the quality and destination. The farm gate's average price is 0.50 JD/kg, while the wholesale market average price is 0.80 JD/kg. The retailers price ranges between 0.80-1.25 JD/kg with the average price of 1.00 JD/kg. And the exporting average price is 1.20 JD/kg, and in some cases it reaches to 1.75 JD/kg,

4.1.1.1.5 Exports

One quarter of farmers exports their date by themselves, who are usually considered as large farmers. These farmers export both varieties of Medjool and Barhi,

but Medjool variety in larger quantities, where it occupies 54.8% of the exported varieties, while about 41.9% of them export Barhi variety. The rest with 3.2% exports other variety such as Dejlet Nour as shown in table 18

Table 18: Dates Variety Exports

Variety	Percent (%)
Madjool	54.8
Barhi	41.9
Dejlet Nour	3.2
Total	100

The destination of exported dates is Arab Countries, especially the Gulf States, and foreign countries, especially Europe. However, the export to foreign countries occupy the highest percentage with (51.2%), while the rest was for the Arab countries as shown in Figure 17

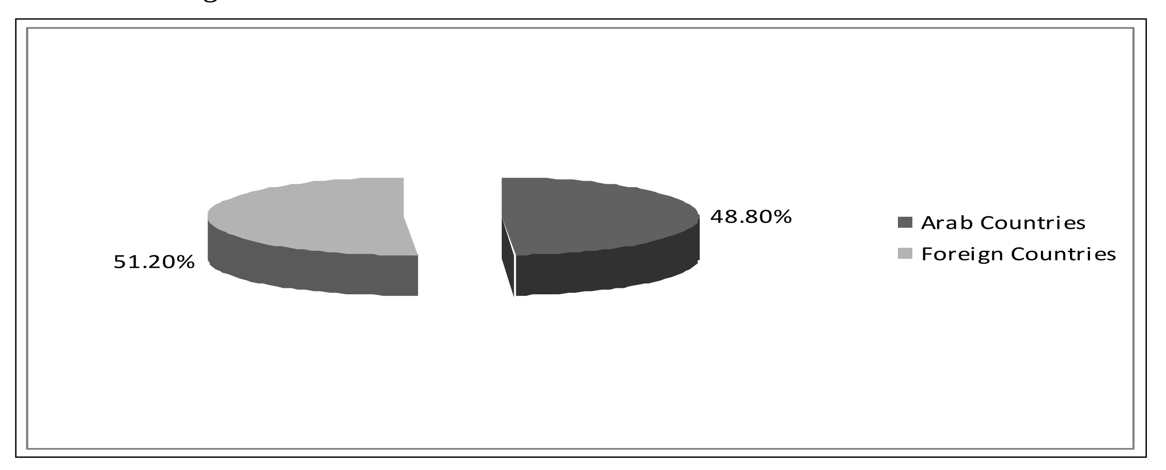


Figure 16: Destination of Exported Dates

There are some farms exporting with the same local prices, while others export with higher than local prices. The average exporting price of Medjool variety for the Arab countries is 7.70 JD/kg, and for foreign countries it is 9.80 JD/kg. The average exporting price of Barhi variety for the Arab countries is 1.20 JD/kg, and to foreign countries it is 1.40 JD/kg.

4.1.1.1.6 Contract Farming

The survey shows that the small number of farms sign contracts with buyers, regardless of their nature; whether commission agents, retailers, or exporters or even importing companies in other countries.

Table 19 shows that only 12.5% of the farms sign contracts, usually with importing companies in other countries. These contracts are seasonal ones according to demand, and they include some conditions related to quantities, prices, quality, packaging, transportation, and so on.

Table 19: The possibility of Farmers to sign contracts

	Frequency	Percent (%)
Sign Contracts	12	12.5
Did not Sign Contracts	84	87.5
Total	96	100.0

4.1.1.1.7 Certifications

Table **19** shows a number of certificates that some farms hold or want to hold. These certificates are ISO, HACCP, and Global GAP.

ISO (International Organization for Standardization) is the world's largest developer and publisher of international standards. Resides it ensure desirable characteristics of products and services such as quality, environmental friendliness, safety, reliability, efficiency and interchangeability at an economical cost.

HACCP (Hazard Analysis Critical Control Point**)** is used in the food industry to identify potential food safety hazards, so that key actions can be considered to reduce or to eliminate the risk of the hazards being realized. The system is used at all stages of the production and preparation processes, including packaging, distribution … etc.

Global GAP (Good Agricultural Practices) is a private sector body that sets voluntary standards for the certification of agricultural products around the globe. The Global GAP standard is primarily designed to reassure consumers about how food is produced on the farm by minimizing detrimental environmental impacts of farming operations, reducing the use of chemical inputs, and ensuring a responsible approach to worker health and safety as well as animal welfare. Global GAP serves as a practical manual for good agricultural practice everywhere in the world. The basis is an equal partnership of agricultural producers and retailers who wish to establish efficient certification standards and procedures.

With regarding ISO certificate, about 7.3% of farms have this certificate, while 21.9% plan to get it in the future. About 10.4% of farms have HACCP certificate, and 15.6% plan to get it in the future. For Global GAP certificate, 17.7% of the farms have this certificate, and 17.7% plan to get it in the future. As shown in table 20

Table 20: Owning Certificates

	ISO Certificate	**HACCP Certificate**	**Global GAP Certificate**
	Percent (%)	**Percent (%)**	**Percent (%)**
Have certificates	7.3	10.4	17.7
Do not have certificates	70.8	74.0	64.6
Plant to get in future	21.9	15.6	17.7
Total	100	100	100

4.1.1.2 Commission Agents

4.1.1.2.1 Varieties and Sources

Barhi variety is regarded as one of the major varieties of dates among the commission agents in the wholesale market-Amman, where it occupies the highest percentage (47.6%). Barhi variety is usually marketed as Balah or Rutab. The main source of Barhi variety in the wholesale market is the farms (about 80.6%), and the rest is through the importers.

Medjool variety occupies 34.9% of varieties marketed at the wholesale market, where the source is 100% from local farms.

Table 21 and 22 show also there are many varieties of dates marketed at the wholesale market such as Dejlet Nour varieties of 4.8%, the source is from local farms and Paste dates of 1.6%. The source is through importers. There are also other varieties (less important) such as Khestawi, Hayyani, Zaghlool, Lolo and others where it occupies percentage of 11.1%.

Table 21: Dates Varieties Marketed At the Wholesale Market

Variety	Percent (%)
Madjool	34.9
Barhi (Balah or Rutab)	47.6
Dejlet Nour	4.8
Pasted Dates	1.6
Other	11.1
Total	100

Table 22: Source of each Dates Variety Marketed At the Wholesale Market

Source	Barhi	Medjool	Dejlet Nour	Paste Dates	Other
	Percent (%)	Percent (%)	Percent (%)	Percent (%)	Percent (%)
Farmers	80.6	100	100	-	57.1
Importers	19.4	-	-	100	42.9
Total	100	100	100	100	100

4.1.1.2.2 Purchasing and Selling Prices

Commission agents at the wholesale market conduct the marketing process, also they facilitate transactions only and take commission that ranges between 5-6% of the value of sales.

Selling prices for Barhi and Medjool variety depends on grade and quality. The average selling price of Barhi variety is 0.95 JD/kg. For Medjool variety, which is usually the second and third grade, the selling price ranges between 2.90-6.00 JD/kg.

4.1.1.2.3 Marketing Costs

4.1.1.2.3.1 Transportation and Storage:

Commission agents does not pay any costs for transportation, but farmers who do the transfer of dates for the wholesale market-Amman and pay all costs which include handling ones.

About 27.3% of Commission agents only store dates in their refrigerated or normal storehouses. The cost of storage is paid by the farmers as shown in Table 23. The average cost of storage is approximately 2.60 JD/ton.

Table 23: Storage of Dates at the Wholesale Market

	Frequency	Percent (%)
Store	9	27.3
Do not Store	24	72.7
Total	33	100.0

4.1.1.2.3.2 Market Fees and Commission:

Wholesale market collect usually market fees of 15 JD/ton for fruits and 10 JD/ton for vegetables. The market fees are equally paid between the farmer and the retailer who takes dates from a commission agent in the wholesale market, which means that the commission agent does not pay any market fees.

As previously mentioned, the commission agents conduct the marketing of dates for farmers or importers exchange for certain commission which ranges between 5-6% of the value of sales.

4.1.1.2.4 Sales

Table **24** shows that date in the wholesale market is distributed to more than one destination, but most of dates goes to retailers with percentage of 73.3%. The retailers

are divided into two types: the first one is Groceries and Supermarkets, and the second one is vegetables and fruits shops. For the other dates, it goes to exporters, with a percentage of only 26.7%.

Table 24: Destination of Dates from the Wholesale Market

Dates Destination	Percent (%)
Retailers	73.3
Exporters	26.7
Total	100

The percentage of dates marketed at wholesale market as compared with the sales of other vegetables and fruit differs from commission agent to another and ranges between 2-18%, with an average percentage of date's sale reaches to 6%.

4.1.1.3 Retailers

4.1.1.3.1 Varieties and Sources

There are many dates' varieties the retailers deal with. The Khodari variety constitutes (29.3%)of the total quantities sold by the retailers, followed by Barhi variety (Tamr, Rutab, and Balah) with a percentage of 19.7%, then Medjool variety with 15.3%, then Paste dates, Mabroum and Dejlet Nour of 14.6%, 10.2% and 1.3%, respectively. The rest are other varieties as shown in table 25

Table 25: Dates Varieties that the Retailers Deal with

Variety	Percent (%)
Khodari	29.3
Barhi	19.7
Medjool	15.3
Paste dates	14.6
Mabroum	10.2
Dejlet Nour	1.3
Other	9.6
Total	100

The sources of dates are different according to the variety and the type of retailer. Khodari variety sold to groceries and supermarkets came mostly from imported dates (76.1%) or through commission agents at wholesale market and farms (13% and 4.3%, respectively). The rest came from other sources such as distributors of food companies.

The most common stages for sold Barhi variety in the vegetables and fruit shops are Rutab and Balah. The source of Barhi variety for vegetables and fruit shops comes mostly through commission agents at the wholesale market and from date farms with the following percentage 63%, and 37%, respectively.

Medjool variety comes mostly from farms with percentage of 62.5%. The rest comes through the commission agents at the wholesale market.

Most of paste dates that is sold to the groceries and supermarkets, especially in Ramadan and Eid period, is imported (82.6%). The rest is divided equally between farms and distributors as shown in table 26

Table 26: Source of Each Dates Variety that the Retailers Deal with

Source	Khodari	Barhi	Medjool	Paste Dates
	Percent (%)	Percent (%)	Percent (%)	Percent (%)
Farmers	4.3	37.0	62.5	4.3
Importers	76.1	-	-	82.6
Commission Agents	13.0	63.0	37.5	8.7
Others	6.5	-	-	4.3
Total	100	100	100	100

4.1.1.3.2 Types and Locations of Retailers

4.1.1.3.2.1 Types of Retailers:

Figure 17 shows that the retailers are divided into two types: Groceries and Supermarkets and Vegetables and Fruit Shops. However, the highest percentage is sold through groceries and supermarkets (62.9%). The survey also shows that there is

diversity in dates varieties sold in groceries and supermarkets as compared with vegetables and fruit shops. Because most of these shops sell Barhi variety (Balah and Rutab) during the production season only, these shops constitute a small percentage (37.1%) of the retailers.

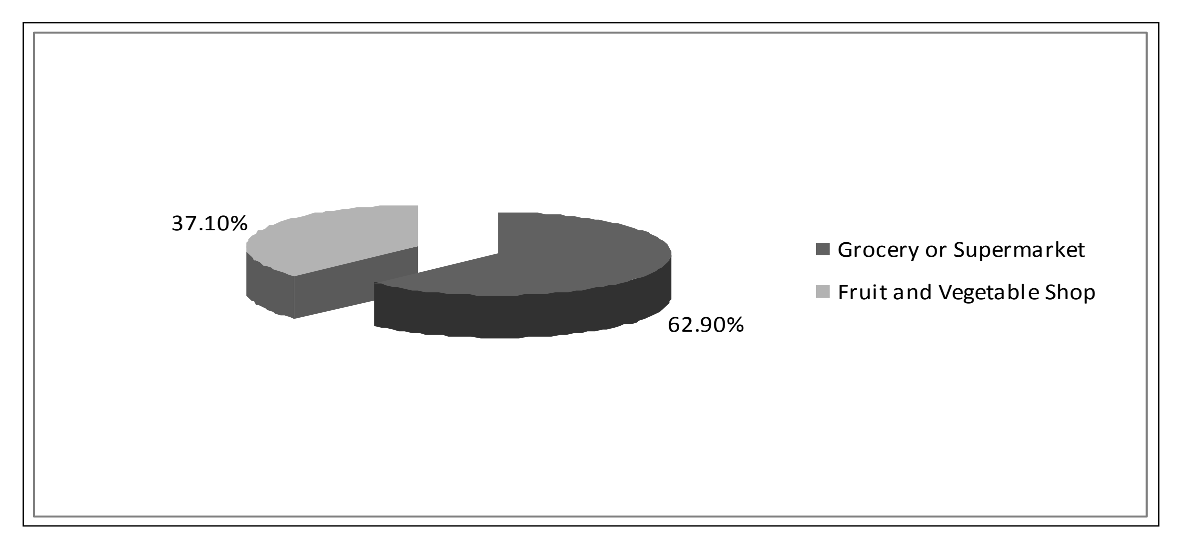


Figure 17: Types of Retailers

Regarding groceries and supermarkets, there are many dates' varieties. However, Khodari variety has the highest percentage (38.1% of sold varieties), followed by paste dates of 20.4%, then Medjool variety (8%), finally Barhi variety (Tamr, Rutab, and Balah) (5.4%). The highest percentages of sales are in Ramadan, which constitutes 51.8% of the sales, whereas the rest is sold all over the year. With respect to vegetables and fruit shops, Barhi variety (Balah and Rutab) constitutes about 56.8% of sold varieties, followed by Medjool variety (34.1%), then Khodari variety (6.8%). The highest percentages of sales (78.8%) are sold at the production season.

4.1.1.3.2.2 Locations of Retailers:

The retailers in the sample are divided into three regions according to the level of income of the consumers:

- Sweifieh as high income level region, with percentage of 25.8%.

- Jabal Al-Hussein as medium income level, with percentage of 44.9%.

- Jabal Al-Nasser as low income level, with percentage of 29.2%.

As shown in figure 18.

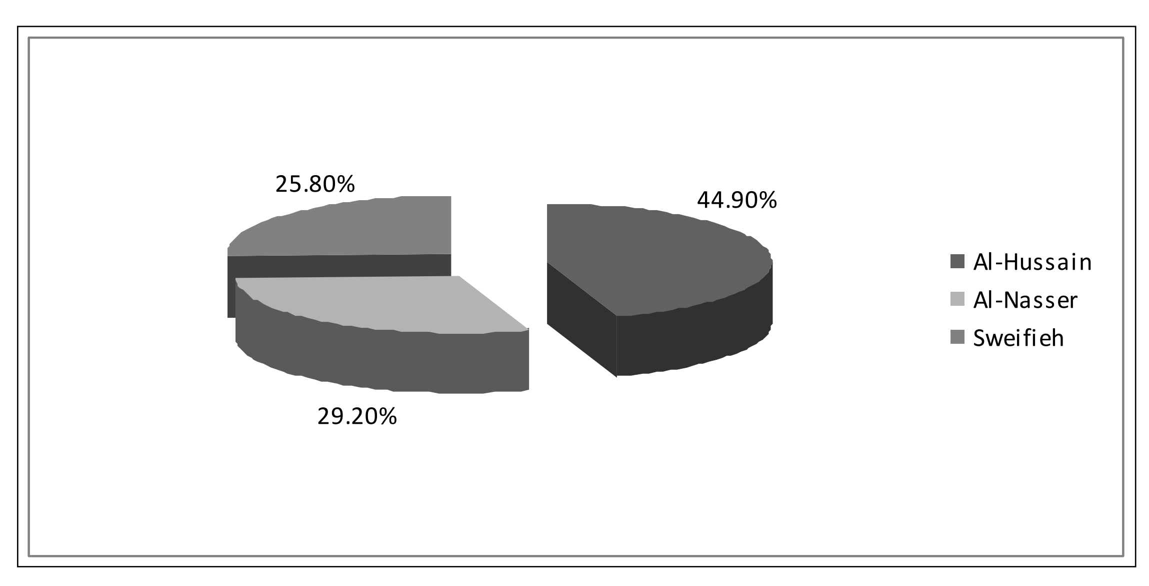


Figure 18: Locations of Retailers in the Sample

4.1.1.3.3 Purchasing and selling prices

Purchasing and selling prices vary according to variety. Moreover, varieties prices vary according to region. Table 27 shows average prices at groceries, supermarkets and vegetables and fruit shops to each variety in each region.

Table 27: Purchasing and Selling Prices for each Dates Variety in each Region

Variety	Region	Purchasing price (JD/kg)	Selling price (JD/kg)
Medjool	Sweifieh	6.00	7.50
	Jabal Al-Hussein	5.00	6.00
	Jabal Al-Nasser	2.90	3.50
Barhi (Tamr)	Sweifieh	2.50	2.70
	Jabal Al-Hussein	2.00	2.50
	Jabal Al-Nasser	-	-
Barhi (Rutab, Balah)	Sweifieh	1.10	1.35
	Jabal Al-Hussein	0.90	1.20
	Jabal Al-Nasser	0.80	1.00
Paste dates	Sweifieh	1.40	1.70
	Jabal Al-Hussein	1.00	1.25
	Jabal Al-Nasser	0.80	1.00
Khodari	Sweifieh	2.50	3.00
	Jabal Al-Hussein	2.50	2.90
	Jabal Al-Nasser	1.90	2.30

Based on that, an average purchasing and selling prices of Medjool variety at the retail level are 4.60 JD/kg and 5.65 JD/kg, respectively. The average purchasing and selling prices of Barhi variety (Tamr) are 2.20 JD/kg and 2.80 JD/kg, respectively. As for Barhi variety (Rutab, Balah) they average purchasing and selling prices are 0.95 JD/kg and 1.15 JD/kg.

The average purchasing and selling prices of paste dates are 0.95 JD/kg and 1.20 JD/kg, respectively. Khodari variety average, purchasing and selling price are 2.30 JD/kg and 2.70 JD/kg, respectively.

4.1.1.3.4 Marketing Costs

4.1.1.3.4.1 Transportation:

In general, dates are transported by trucks with different capacities. About 41.6%, of the retailers pay the cost of transportation, but in most cases the Commission agents or importers who market/sell to retailers pay the cost of transportation with percentage of 58.4%, as shown in table 28. The cost of transportation is approximately JD 8 /ton.

Table 28: Transportation of Dates from Retailers

	Frequency	**Percent (%)**
Transportation cost paid by the retailer	37	41.6
Delivered to retailers without paying transportation cost	52	58.4
Total	89	100.0

4.1.1.3.4.2 Storage:

The retailers, both grocery and vegetable and fruits stores, do not store dates since they buy small quantities from one period to another and put them on the shelves.

4.1.1.3.4.3 Market Fees

The retailers who purchase dates through commission agents at the wholesale market, mostly vegetables and fruit shops, pay 7.5 JD/ton as fees. The retailers who purchase dates from importers or directly from farms do not pay any fees.

4.1.1.3.5 Quantities of Sales

Quantities of dates sold in the vegetables and fruit shops or groceries and supermarkets as compared with all items sold in them is small with 2.7%.

4.1.1.4 Exporters

4.1.1.4.1 Varieties and Sources

The major exported varieties of dates are Medjool, Barhi and Dejlet Nour at different percentages.

Figure 19 shows that Barhi variety occupies the highest percentage of 50% of other varieties, followed by Medjool variety (45.5%), and 4.5% for Dejlet Nour variety. So Dejlet Nour variety is excluded from this study which focuses on the Medjool and Barhi varieties.

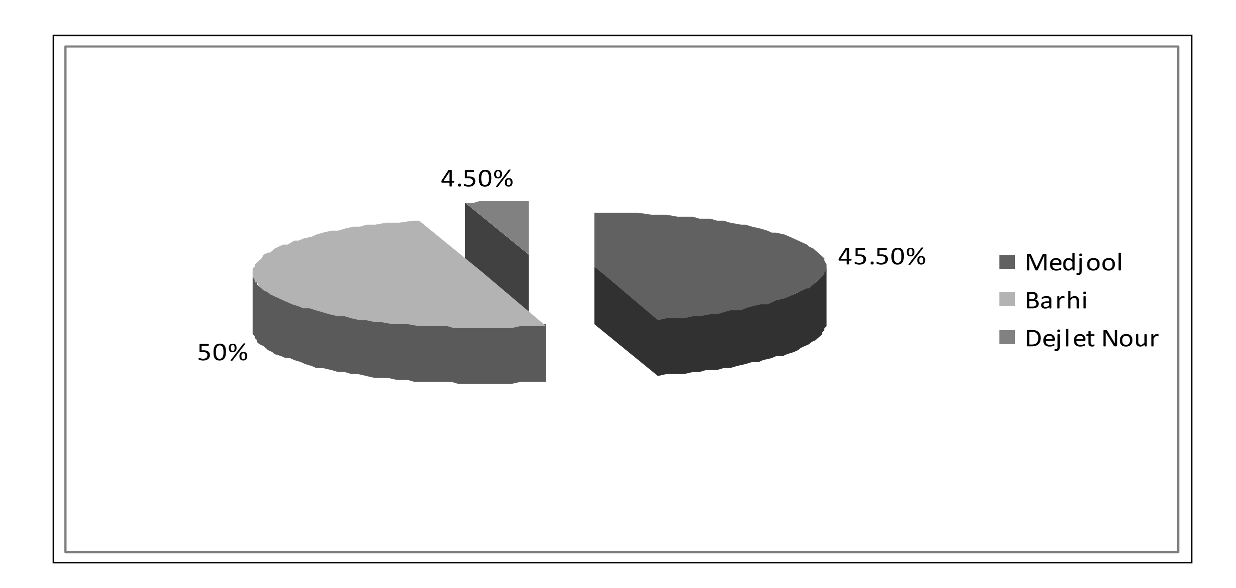


Figure 19: Varieties of Exported Dates

Figure 20 shows that the dates are usually exported either from the farms directly or through food exporting companies. These companies purchase the dates from the farms directly or from the wholesale market. Small percentage of exported dates (26.7%) is exported through exporters, while the rest (73.3%) is directly exported from the farms.

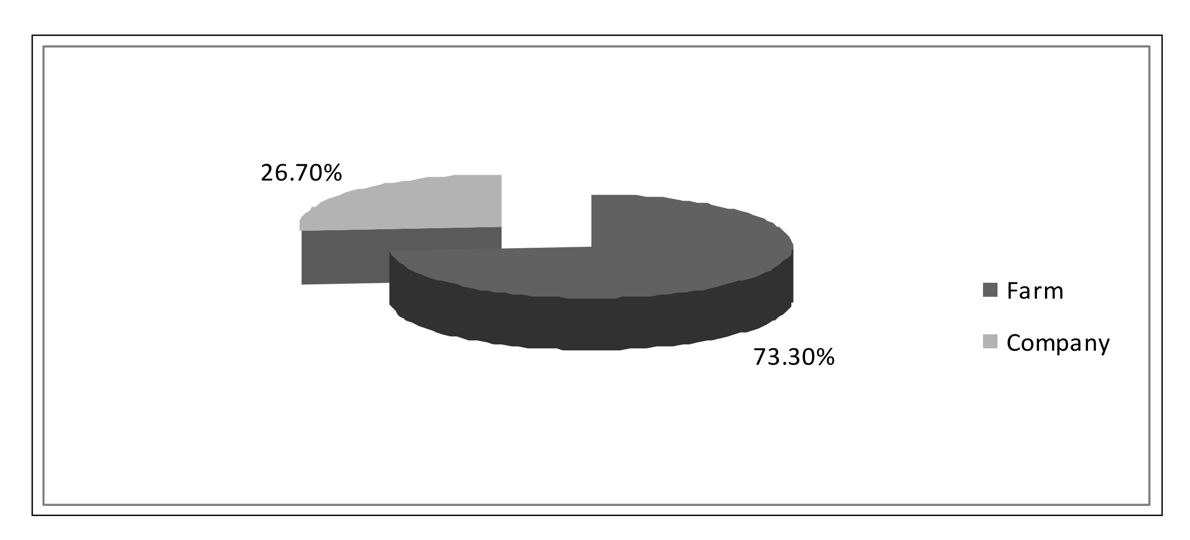


Figure 20: Types of Exporters

With respect to exporting farms, the main source of dates is their own production, but they make up for any shortages by buying from other farms.

Table 29 shows that the source of Medjool variety for export is directly from the farms (83.3%); it usually is high quality date (First grade). 8.3% of Medjool variety is sold in the wholesale markets (Second grade). The main source of Barhi variety for export is also the farms with percentage of 84.6%, and only 7.7% of which is from the wholesale market.

Table 29: Source of Exported Dates Variety

Source	Medjool	Barhi
	Percent (%)	Percent (%)
Farms	83.3	84.6
Wholesale Market	8.3	7.7
Other Traders	8.3	7.7
Total	100	100

4.1.1.4.2 Purchasing Prices

Purchasing prices vary in the same variety according to purchasing source and quality. Regarding Medjool variety, the price ranges between 4.00-7.20 JD/kg when the source is the farms, but when the source is the wholesale market, the average price is approximately 3.00 JD/kg.

Regarding Barhi variety, the price ranges between 0.50-0.85 JD/kg when the source is from farms. On the other hand, the average price is approximately 0.60 JD/kg when the source is the wholesale market.

4.1.1.4.3 Destination of Dates

Dates are exported (both varieties, Medjool and Barhi) to the Arab countries, especially the Gulf States and to foreign countries especially Europe. The exported quantities of Medjool variety are equally divided between the Arab and foreign countries. With respect to Barhi variety, 68.8% of exported quantities were directed to the Arab countries especially the Gulf States. and 31.2% exported to foreign countries as shown in table 30

Table 30: Destination of Dates from Exporters

Dates destination	Medjool	Barhi
	Percent (%)	Percent (%)
Arab countries	50.0	68.8
Foreign countries	50.0	31.2
Total	100	100

4.1.1.4.4 Selling Prices

Selling prices for exported dates are different according to variety, quality, and importing country. Regarding the selling price of Medjool variety to the Arab countries, it ranges between 6.00 -9.00 JD/kg with an average price 7.65 JD/kg, and the selling price to foreign countries could rise up to 12.00 JD/kg.

The average selling price of Barhi variety to the Arab countries is approximately 1.10 JD/kg, and the selling price to foreign countries ranges between 1.00-1.50 JD/kg with an average price 1.25 JD/kg.

4.1.1.4.5 Storage

Most exporters store dates till exportation time. Most of those exporters are farms with percentage of 73.3% as shown in Figure 21. The exporting companies purchase dates and export it directly without storage.

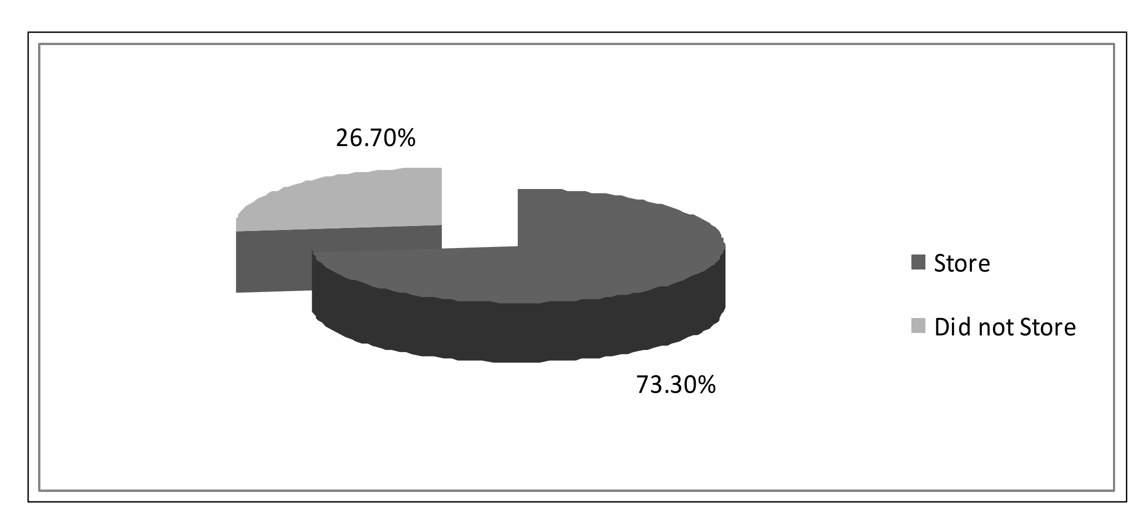


Figure 21: Storage of Dates by Exporters

Farmers usually use refrigerators to store dates, especially for the Medjool variety. The cost of storage is 5 JD/ton, the possible loss or waste may occur in small percentage of 0.2%.

4.1.1.4.6 Transportation

Table 31 shows about 45.5% of the farms who export directly from their farms through the representative of the importing countries does not pay any costs for transfer or shipping. The other 54.5% of the exporting farms transfers the dates to the shipping location by using refrigerator trucks.

Table 31: Transportation Dates from Exporting Farm

	Percent (%)
Sale on-farm	45.5
Transfer of dates to shipping location	54.5
Total	100.0

As for the exporting companies, Table 32 shows that 75% of them transfers dates to the shipping location by normal trucks. 25% of those companies do not pay for transferring the dates, and the representative of the importing country pays for all the transfer and shipping costs.

Table 32: Transportation Dates from Exporting Company

	Percent (%)
Sale to representative	25.0
Transfer of dates to shipping location	75.0
Total	100.0

The cost of transportation by refrigerated trucks is 13 JD/ton, while the cost of transportation by ordinary trucks is 8 JD/ton. The loss and waste during transportation are about 0.1%.

4.1.1.4.7 Shipping Practices

There is more than one method of shipping: by air or by road. Shipping by air is used when the shipping destination is a foreign country. When the shipping destination is to one of the Arab countries, only 57.1% of exporters use shipping by air, and the other with 42.9% of exporters use shipping by road as shown in Table 33

Table 33: Type of Shipping to Arab Countries

Type of Shipping	Percent (%)
By air	57.1
By road	42.9
Total	100

Figure 22 shows that The cost of shipping to the Arab or foreign countries, 73.3% of exporters (majority of farms) do not pay any shipping costs because the importing companies pay all costs related to shipping, while only 26.7% of exporters pay for shipping costs.

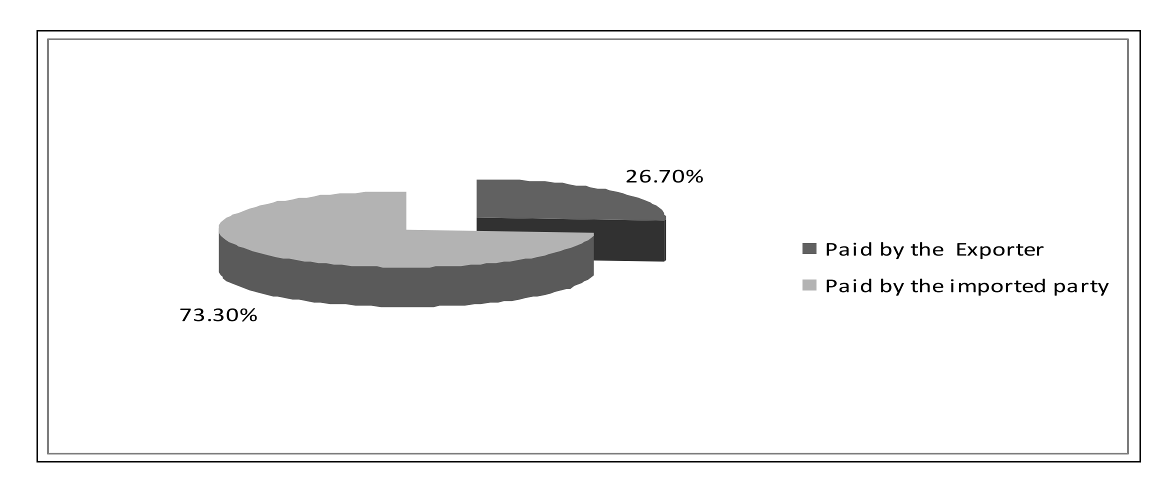


Figure 22: Cost of shipping

The cost of shipping by air to the Arab countries is 100 JD/ton; dates are usually exported in containers of 5 kg, where the cost of shipping for each container ranges between JD 0.45-0.75. The cost of shipping by road to the Arab countries ranges between 0.25-0.35 JD/5kg. As for the cost of shipping by air to foreign countries, it paid mostly by the importing companies, and it usually costs 0.95 JD/5kg.

4.1.1.4.8 Contracts

Most of the exporters, farms or exporting companies, do not sign contracts with importing companies. Only one third does so as shown in Figure 23. These contracts are mostly seasonal contracts with certain conditions and terms related to quantities, prices, quality, packaging, transportation, shipping, and so on.

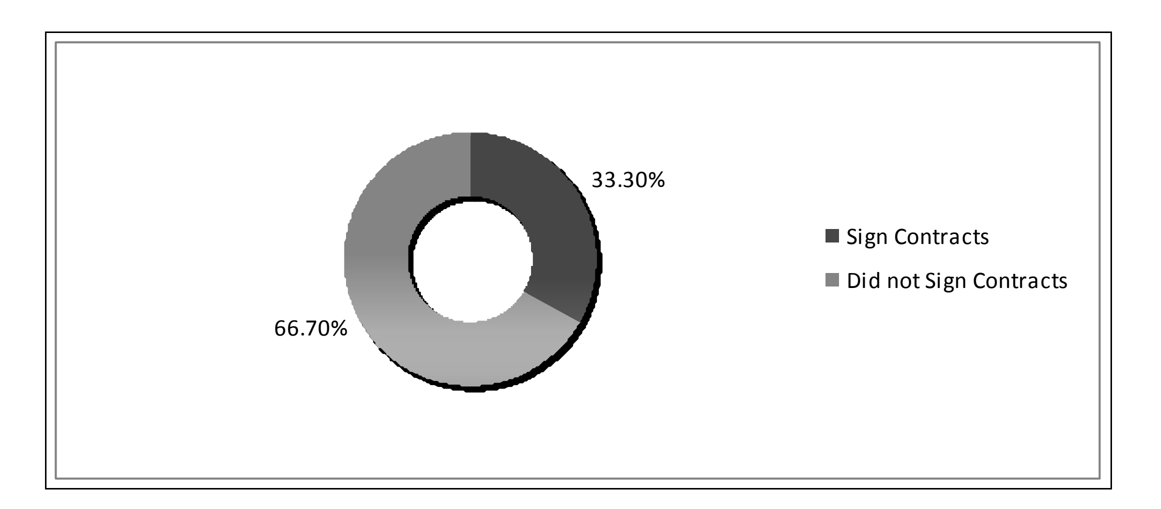


Figure 23: The possibility of Exporters to sign contracts

4.1.1.5 Importers

4.1.1.5.1 Locations of Importers

Table 34 shows that most of the importers are located in Wadi Al-Remam (83.3%). Only 16.7% of the importers are located at Amman wholesale market.

Table 34: Locations of Importers

	Frequency	Percent (%)
Wholesale Market	2	16.7
Wadi Al-Remam	10	83.3
Total	12	100.0

4.1.1.5.2 Varieties and Sources

Figure 24 shows that the Khodari variety imports constitute about 47.6% of all imported varieties, followed by Mabroum variety (19%), then Paste dates and Dejlet Nour variety with the percentage of 9.5% and 4.8%, respectively, other imported varieties constitute 19.1% of the imported dates.

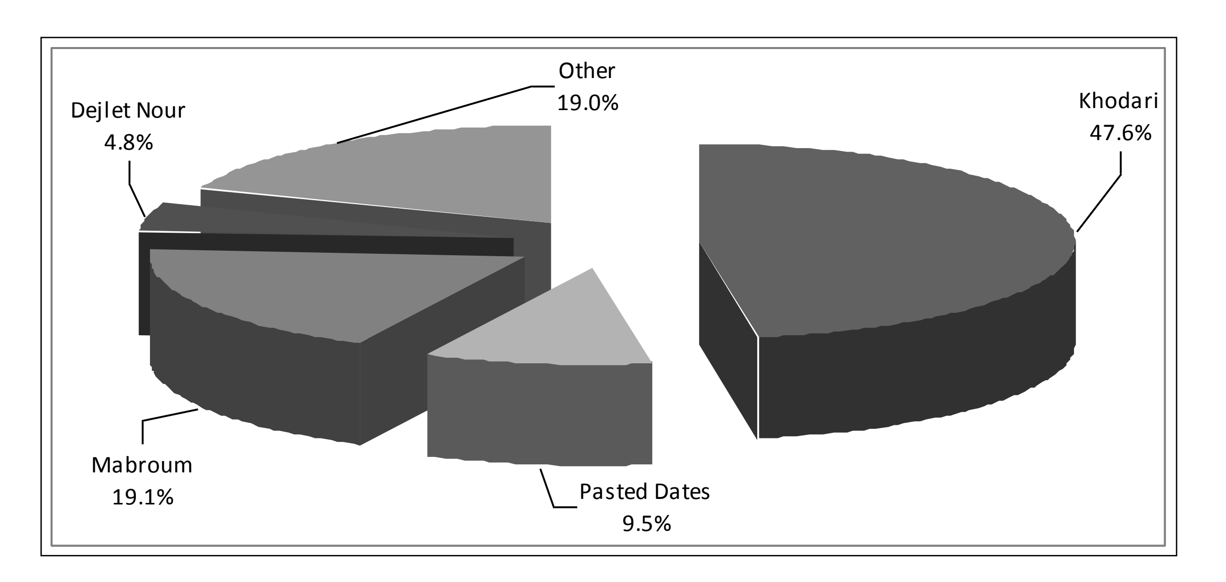


Figure 24: Imported Dates Varieties

Table 35 shows that the main source of Khodari variety is the Gulf countries States, where 76.9% of the imported Khodari is imported from these countries. Other sources of Khodari are Algeria and Tunisia with percentage of 15.4% and 7.7%, respectively. The main source of Mabroum variety and Paste dates are the Gulf countries, while the main source of Dejlet Nour variety is Algeria. About 50% of the sources of the other varieties are the Gulf States, and the rest is from Algeria and Iraq with percentage of 33.3% and 16.7%, respectively.

Table 35: Source of Imported Dates Variety

Source	Khodari	Pasted Dates	Mabroum	Dejlet Nour	Other
	Percent (%)	Percent (%)	Percent (%)	Percent (%)	Percent (%)
Gulf States	76.9	100.0	100.0	-	50.0
Algeria	15.4	-	-	100.0	33.3
Tunisia	7.7	-	-	-	-
Iraq	-	-	-	-	16.7
Total	100	100	100	100	100

Figure 25 shows that most of importers buy dates for Ramadan, where as 66.7% of imported dates are imported right before Ramadan. About 33.3% are imported during

different times of the year. Most of imported dates are of high quality and of very high quality.

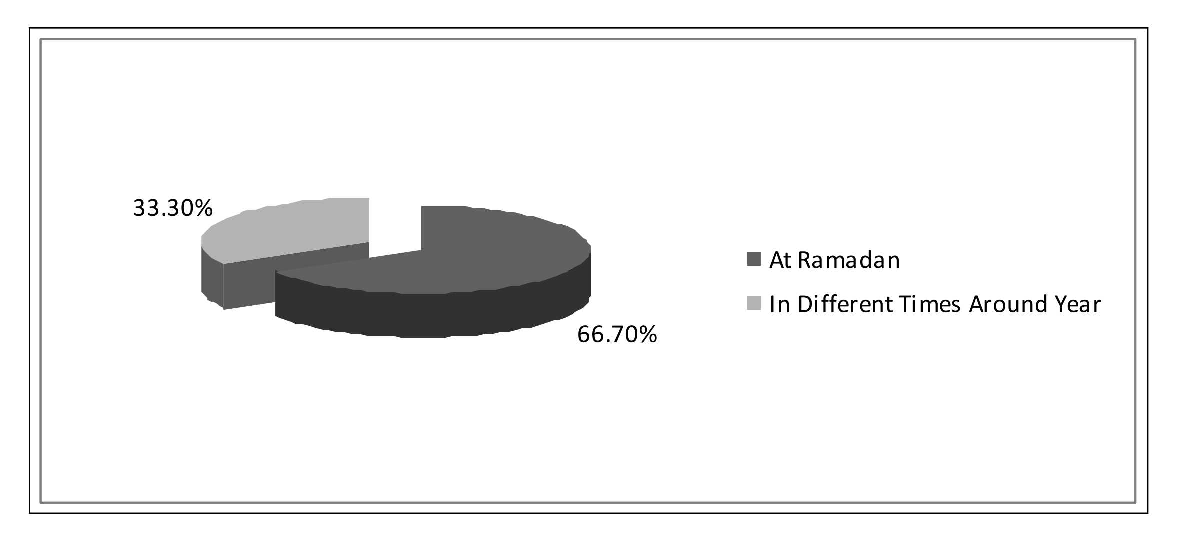


Figure 25: The Highest Import Period

4.1.1.5.3 Purchasing and Selling Prices

Purchasing price of imported Khodari variety ranges between 1.50-2.70 JD/kg and the average purchasing price is 2.10 JD/kg. The selling price ranges between 2.25-3.00 JD/kg with an average of 2.45 JD/kg.

The purchasing price of imported Mabroum variety ranges between 3.50-4.00 JD/kg with an average of 3.75 JD/kg. The selling price of this variety ranges between 5.00-5.50 JD/kg, and the average selling price is 5.25 JD/kg. On the other hand, paste dates prices range between 0.60-0.70 JD/kg, and the average of purchasing price is 0.65 JD/kg. The selling price for it ranges between 0.90-1.20 JD/kg with an average of 1.00 JD/kg.

4.1.1.5.4 Dates Destinations

The following table shows that the importers sell through commission agents to the retailers (47.4%) or directly to the retailers (52.6%).

Table 36: Destination of Dates from Importers

Dates Destination	Percent (%)
Through commission agents	47.4
Retailers directly	52.6
Total	100

4.1.1.5.5 Marketing Costs

4.1.1.5.5.1 Transportation:

Most of importers transports dates from Amman Customs to the location of their company and pay all transportation and customs costs. With respect to the transportation cost of dates from importing company warehouses to destination of dates, they are sometimes paid by the importing company, and they are sometimes paid by the retailers who purchase dates from these importing companies.

The transportation from Amman Customs to the location of the importing companies is usually conducted by rented transport containers with capacity ranges between 15-25 tons, where as the cost of one ton is approximately JD 30. The transportation from the location of the importing companies to the retailers is conducted by normal trucks with cost of 8 JD/ton.

4.1.1.5.5.2 Re-packing:

All importers do not re-pack the imported dates. Therefore, they do not pay for any cost of re-packing.

4.1.1.5.5.3 Storage:

All importers store the imported dates in their own warehouses. They use refrigerator stores with different capacities according the imported quantities. The cost of storage is approximately 5 JD/ton.

4.1.1.5.6 Contracts

Figure26 shows that most of the importers do not sign contracts with sellers or buyers, but there is a small percentage of 8.3% of the importers sign contracts.

The contracts have some conditions related to qualities, quantities, prices and other conditions.

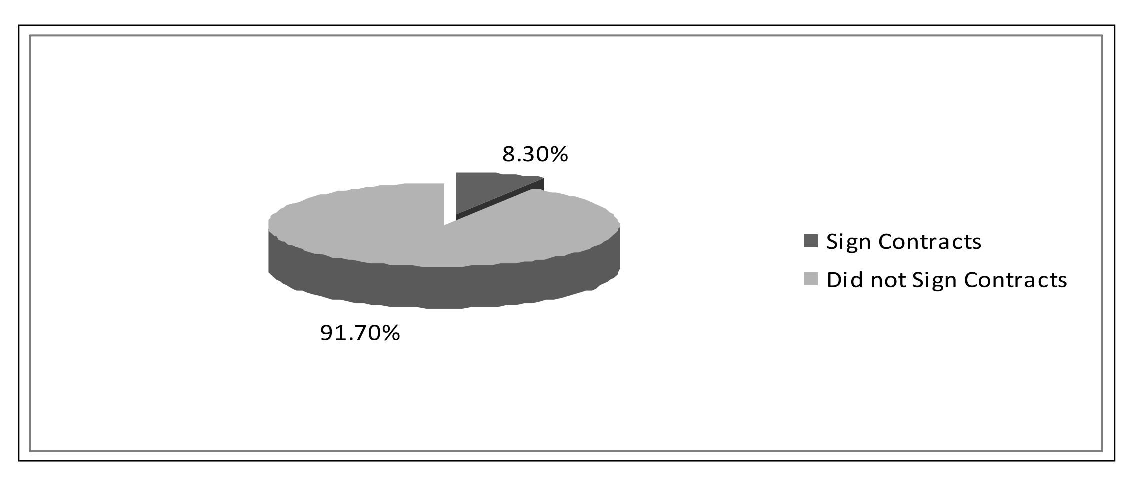


Figure 26: The Possibility of Importers to Sign Contracts

4.1.1.6 Final Consumers

Final consumers purchase dates directly either from the farms or from the retailers (groceries and supermarkets or vegetables and fruit shops), but most of the final consumers purchase dates from retailers.

Generally, most of the final consumers consume dates only in Ramadan, at sometimes at the seasons of Balah or Rutab, whereas a small percentage consumes dates around the year.

4.2 Analysis of the Competitiveness of Date Palm Sector

4.2.1 Functional analysis

4.2.1.1 Functional Analysis of the Commodity Chain of the Local Dates in Jordan

Table 37 shows the functional analysis of the commodity chain of the local dates in Jordan.

Table 37: Functional Analysis of the Commodity Chain of the Local Dates in Jordan

Stage of Chain	Function	Agent	Output
- Production	- Cultivation - Harvesting (picking)	- Farmers	- Dates fruits
- Processing	- Cleaning - Grading - Packaging	- Farmers	- Packed dates in different capacities
- Marketing	- Selling and transportation of dates to wholesalers or retailers - selling of dates to exporters or final consumers	- Farmers	- Packed dates in different capacities
	- Marketing of dates to retailers	- Commission Agents	
- Retail	- Transportation of dates to retailers - selling of dates to final consumers	- Retailers	- Packed dates in different capacities

4.2.1.2 Functional Analysis of the Commodity Chain of the Imported Dates in Jordan

Table 38 shows the functional analysis of the commodity chain of the imported dates in Jordan.

Table 38: Functional Analysis of the Commodity Chain of the Imported Dates in Jordan

Stage of Chain	Function	Agent	Output
- Production	- Cultivation - Harvesting (picking)	- Farmers in the country of origin	- Dates fruits
- Processing	- Cleaning - Grading - Packaging	- Farmers in the country of origin	- Packed dates
- Importing	- International transportation - Sometimes, local transportation	- Importers	- Packed dates
- Marketing	- selling and transportation of dates to retailers or wholesalers	- Importers	- Packed dates
- Retail	- Transportation of dates to retailers - selling of dates to final consumers	- Retailers or commission agents - Retailers	- Packed dates

4.2.2 Flow Chart of Marketing Channel and Commodity Chain

4.2.2.1 Flow Chart for the Marketing Channel of Local Dates in Jordan

Figure 27 shows the flow chart for the marketing channel of local dates in Jordan. Firstly, dates are produced in the dates farms, then distributed to more than one destination mainly to Commission agents at the wholesale market who sell it to retailers. Then, the retailers sell it to the final consumers, or dates are directly sold from the dates farms to retailers or to the final consumers and can be distributed to exporters who export dates to Arab and foreign countries.

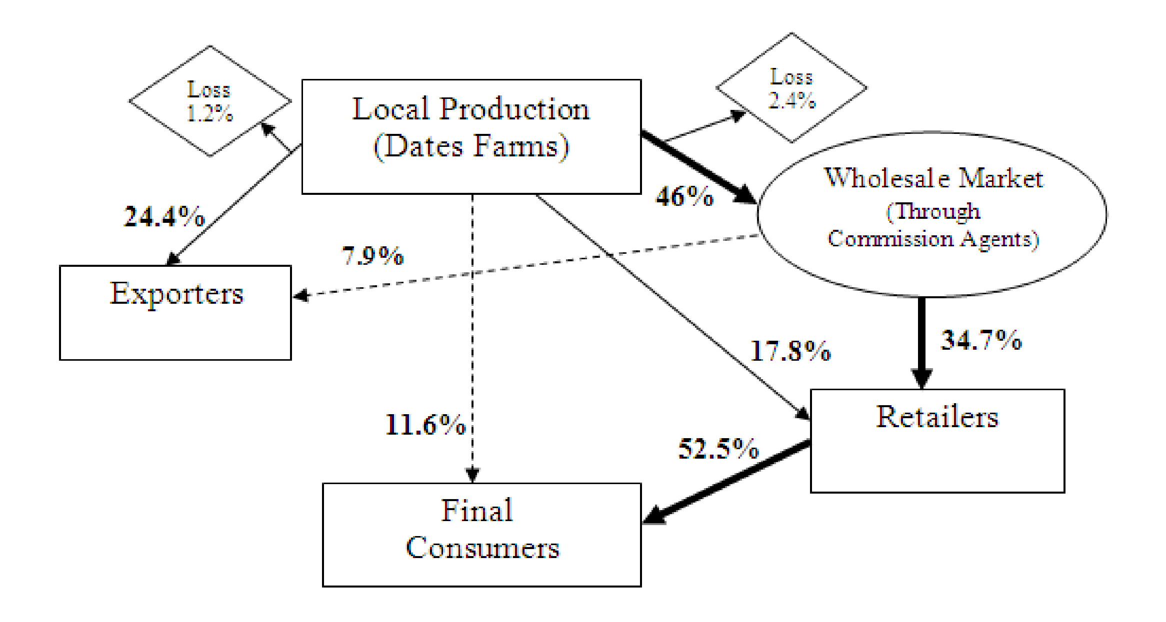


Figure 27: Flow Chart for the Marketing Channel of Local Dates in Jordan

4.2.2.2 Flow Chart for the Marketing Channel of Imported Dates

Figure 28 shows the flow chart for the marketing channels of imported dates in Jordan. Dates are imported from several countries, and then distributed to more than one destination, mainly to retailers who sell them to the final consumers or sell the dates to commission agents at the wholesale market who sell it to retailers who sell it to the final consumers.

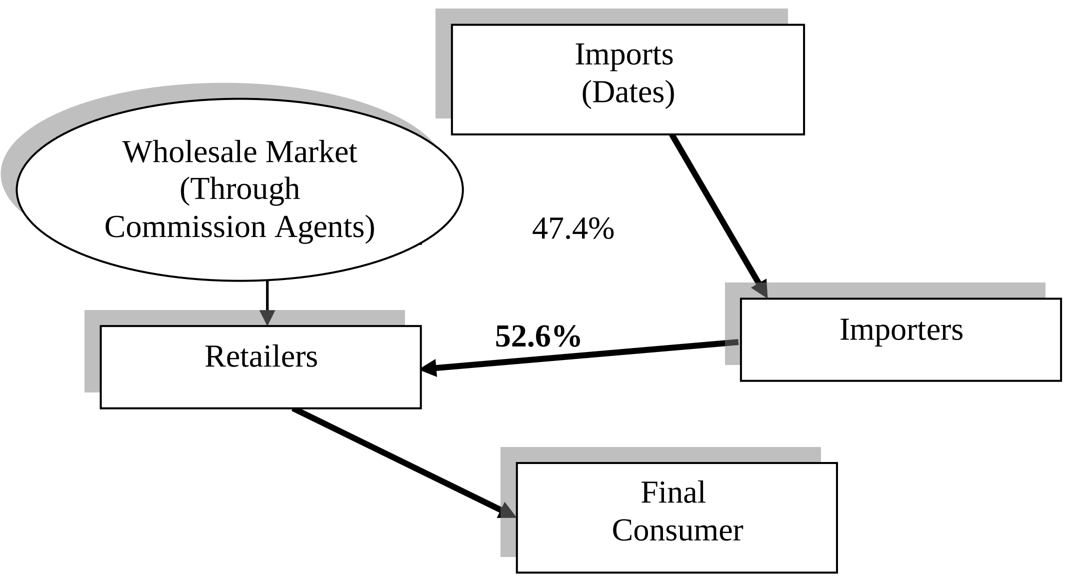


Figure 28: Flow Chart for the Marketing Channel of Imported Dates

4.2.2.3 Commodity Chain for First Grade of Medjool Variety in Jordan (Cardboard Container with 1 kg Capacity) (JD)

Figure 29 shows the commodity chain for first grade of Medjool variety in Jordan (cardboard container with 1 kg capacity), where at each stage the price and cost of the marketing activity are added, and the gross margins were calculated.

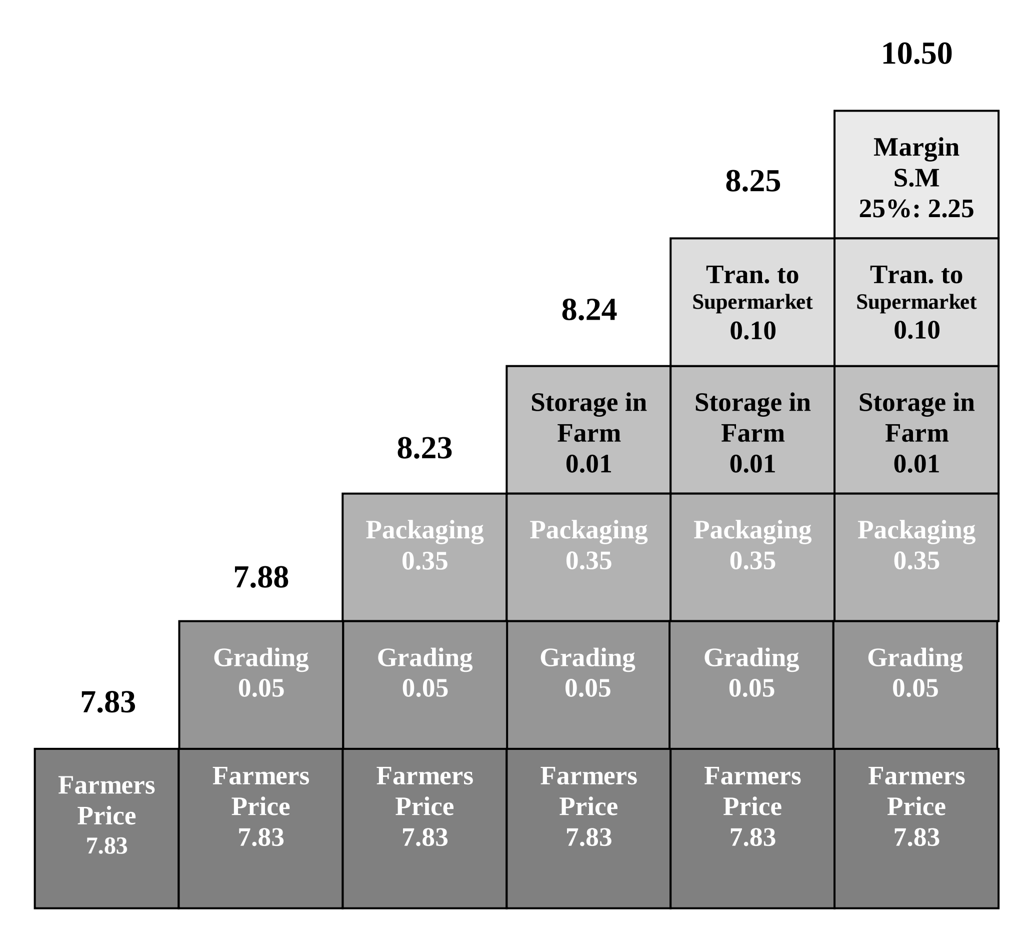


Figure 29: Commodity Chain for First Grade of Medjool Variety in Jordan

4.2.2.4 Commodity Chain for Second Grade of Medjool Variety in Jordan (Cardboard Container with 1 kg Capacity) (JD)

Figure 30 shows the commodity chains for second grade of Medjool variety in Jordan (cardboard container with 1 kg capacity), where at each stage the price and cost of the marketing activity are added, and the gross margins were calculated.

3.95	**4.00**	**4.30**	**4.31**	**4.32**	**4.33**	**4.60**	**4.61**	**4.62**	**5.65**
									Margin R. 23%: 1.03
								Tran. To R. 0.01	Tran. To R. 0.01
							Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075
						Commi. 0.27	Commi. 0.27	Commi. 0.27	Commi. 0.27
					Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075
				Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01
			Storage in Farm 0.005	Storage in Farm 0.005	Storage in Farm 0.005	Storage in Farm 0.005	Storage in Farm 0.005	Storage in Farm 0.005	Storage in Farm 0.005
		Packing 0.30	Packing 0.30	Packing 0.30	Packing 0.30	Packing 0.30	Packing 0.30	Packing 0.30	Packing 0.30
	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05
Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95	Farmer Price 3.95

Figure 30: Commodity Chain for Second Grade of Medjool Variety in Jordan

4.2.2.5 Commodity Chain for Barhi –Balah- Variety in Jordan (Plastic Container with 1 kg Capacity)

Figure 31 shows the commodity chains for Barhi -Balah- variety in Jordan (cardboard container with 1 kg capacity) (JD), where at each stage the price and cost of the marketing activity are added, and the gross margins were calculated.

0.58	0.63	0.88	0.89	0.90	0.96	0.97	0.98	1.15
								Margin R. 20%: 0.17
							Market Fees 0.0075	Market Fees 0.0075
						Tran. To R. 0.01	Tran. To R. 0.01	Tran. To R. 0.01
					Commi. 0.058	Commi. 0.058	Commi. 0.058	Commi. 0.058
				Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075	Market Fees 0.0075
			Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01	Tran. To W.M 0.01
		Packing 0.25	Packing 0.25	Packing 0.25	Packing 0.25	Packing 0.25	Packing 0.25	Packing 0.25
	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05	Grading 0.05
Farmers Price 0.58	Farmers Price 0.58	Farmers Price 0. 58	Farmers Price 0. 58	Farmers Price 0. 58	Farmers Price 0. 58	Farmers Price 0. 58	Farmers Price 0. 58	Farmers Price 0. 58

Figure 31: Commodity Chain for Barhi –Balah- Variety in Jordan

4.2.3 Marketing Margins

4.2.3.1 Marketing Margins for First Grade of Medjool Variety in Jordan (Cardboard Container with 1 kg Capacity)

Table 39 shows the marketing margins for first grade of Medjool variety in Jordan (cardboard container with 1 kg capacity). Usually, the first grade of Medjool variety is directly sold from the farmer to the retailer either supermarket or hypermarket that sells it to the final consumer. The farmer pays all marketing costs such as grading, packaging, storage and transportation to retailer, while the retailer does not pay any costs.

Table 39: Marketing Margins for First Grade of Medjool Variety in Jordan

Stages	**JD**	**%**
Farmer	**7.83**	74.57
- Grading	0.05	0.48
- Packaging	0.35	3.33
- Storage	0.01	0.10
- Tran. to Supermarket	0.01	0.10
Retailer	**8.25**	-
- Gross Margin	2.25	21.43
Final Consumer	**10.50**	**100**

4.2.3.2 Marketing Margins for Second Grade of Medjool Variety in Jordan (Cardboard Container with 1 kg Capacity)

The following table shows the marketing margins for second grade of Medjool variety in Jordan (cardboard container with 1 kg capacity). The second grade of Medjool variety passes in more than stage to reach the final consumer, starting from farmer that grading dates, packaging and transportation to the wholesale market, where he/she pays the market fees and commission to commission agent who marketing of dates to retailer either supermarket or fruit and vegetables shop that sell dates to the final consumer.

Table 40: Marketing Margins for Second Grade of Medjool Variety in Jordan

Stages	JD	%
Farmer	**3.95**	69.91
- Grading	0.05	0.88
- Packaging	0.30	5.31
- Storage	0.005	0.09
- Tran. to Wholesale market	0.01	0.18
- Market Fees	0.0075	0.13
- Commission	0.27	4.96
Retailer	**4.60**	-
- Market Fees	0.0075	0.13
- Tran. to Retailers	0.01	0.18
- Gross Margin	1.03	18.23
Final Consumer	**5.65**	**100**

4.2.3.3 Marketing Margins for Barhi –Balah- Variety in Jordan (Plastic Container with 1 kg Capacity)

The following table shows the marketing margins for Barhi -Balah- variety in Jordan (cardboard container with 1 kg capacity). Barhi variety usually marketed as Balah or Rutab and usually marketed at the wholesale market through commission agents to retailers that sell dates to the final consumer.

Table 41: Marketing Margins for Barhi –Balah- Variety in Jordan

Stages	JD	%
Farmer	**0.58**	50.43
- Grading	0.05	4.35
- Packaging	0.25	21.74
- Tran. to Wholesale market	0.01	0.87
- Market Fees	0.0075	0.65
- Commission	0.058	5.04
Retailer	**0.96**	-
- Market Fees	0.0075	0.65
- Tran. to Retailers	0.01	0.87
- Gross Margin	0.17	14.78
Final Consumer	**1.15**	**100**

4.2.4 Comparative Advantage Measures

4.2.4.1 PAM Approach

The PAM simply reorganizes the data from the private and social budgets. In the first row, the PAM contains measures of prices in private prices (the observed market prices) through private budget calculated in the present value of revenue, tradable costs and non-tradable costs[1].

In the second row, the PAM contains measures of prices in social prices (efficiency or shadow prices) through social budget[2]; the valuation is given in the world price. Therefore, FOB prices data of exportable items and CIF prices of importable items.

Social valuation of outputs and inputs is a major segment within the building process of the Policy Analysis Matrix (PAM). Social prices in the PAM are also referred to as efficiency prices (shadow prices). Social or efficiency prices demonstrate the opportunity costs of use. It is necessary to find the equilibrium values of some of the domestic prices, mainly, the exchange rate[3].

There are several methods could be used to estimate the Equilibrium Exchange Rate (EER). The simplest method is conducted by calculating the Standard Correction Factor (SCF) and then divides the Official Exchange Rate (OER) on this factor. The SCF is calculated as follows:

$$SCF = \frac{\text{Exports} + \text{Imports}}{\text{Exports} + \text{Imports} + \text{taxes} + \text{Subsidies}}$$

The Data used in Calculating the EER is an average of 2006-2008 that shows in Table 42

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[1] Annex 1
[2] Annex 2
[3] Annex 3

Table 42: Jordan's Exports, Imports, Taxes and Subsidies

Items	Value (million JD)
Exports	6968.13
Imports	11352.80
Taxes	334.63
Subsidies	542.53

Source: Central Bank of Jordan, Publications and Statistics, Annual Report 2009.

- OER = JD 0.708/1US$

The SCF is 0.95, and the EER is JD 0.74/US$

Tables 43 and 44 show the PAM for dates (Medjool and Barhi varieties) in Jordan, and through this matrix Domestic Resources Cost (DRC) and Social Cost Benefit (SCB) coefficients can be calculate.

Table 43: Policy Analysis Matrix for Medjool Variety

Items	Revenues	Cost of Tradable inputs	Cost of Domestic factors	Profits
Private Prices	1046.55	29.62	219.87	797.06
Social Prices	5761.23	19.74	142.87	5598.62
Effects of divergences and efficiency policy	-4714.69	9.88	77.00	-4801.56

Table 44: Policy Analysis Matrix for Barhi Variety

Items	Revenues	Cost of Tradable inputs	Cost of Domestic factors	Profits
Private Prices	447.22	29.62	219.87	197.73
Social Prices	1668.38	4.77	142.87	1520.74
Effects of divergences and efficiency policy	-1221.16	24.85	77.00	-1323.01

Table 43 and 44 show that the effects of divergences and efficiency policy / Transfers for revenues and profits are negative (less than zero), that means that private price are fewer than social price. This refers to the effect of subsidy on irrigation water and to exchange rate.

4.2.4.2 Domestic Resources Cost (DRC)

The DRC coefficient of these selected varieties are less than one, which means that these varieties enjoy a comparative advantage in the production which means that it allocates the domestic resources efficiently.

The results presented in Table 45 show that the DRC coefficient for Medjool and Barhi varieties in Jordan are 0.02 and 0.09, respectively. These results imply that in order to get or save 1000 JD of foreign exchange, Jordan has to spend JD 2 or JD 9 from domestic resources. This means that Jordan has a comparative advantage in producing these two varieties.

Table 45: Domestic Resources Cost and Social Cost Benefit Coefficients for Medjool and Barhi Varieties

	Medjool	Barhi
Domestic Resources Cost (DRC)	0.0249	0.0859
Social Cost Benefit (SBC)	0.0282	0.0885

4.2.4.3 Social Cost Benefit (SCB)

The Social Cost Benefit (SCB) coefficient for Medjool and Barhi varieties was 0.03 and 0.09, respectively, and both are less than one as shown in Table 45, which shows that these varieties production in Jordan has a comparative advantage from a social point of view.

4.2.5 Competitive Advantage Measures

4.2.5.1 Trade Entropy Index (TEI)

The trade entropy index (TEI) is used in trade analysis to measure the concentration or dispersion of trade. These trade flows can be either in terms of imports or exports. As mentioned earlier, the TEI is calculated for the exports of dates to the selected countries only.

$I_{xi} = a_{ij}\ln(1/a_{ij})$ **with** $0 < a_{ij} < 1$ **and** $\Sigma a_{ij} = 1$

where:

I_{xi}: Entropy index of export.

a_{ij}: Export share of country i to country j.

Figure 32 shows that the export entropy values show that there is a considerable change in date's exports to the selected countries from Jordan since it has diverse export pattern during the studied period. Moreover, the index shows that the highest export concentration was to Saudi Arabia, Bahrain, and then Qatar, with value of 0.361, 0.351 and 0.234, respectively. So exports should focus on these countries and try to make them as permanent clients.

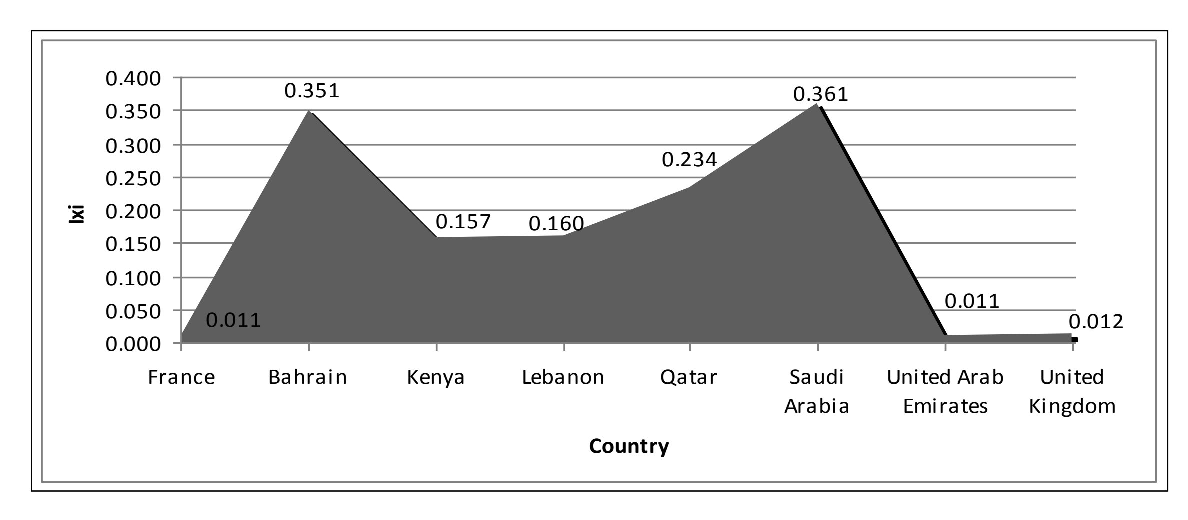


Figure 32: The Entropy Index of Export of Dates from Jordan to the Selected Countries

4.2.5.2 Constant Market Share (CMS)

Jordan's exports of dates to the selected countries increased gradually with average of 541 tons/year during the first period 2002-2003, then it increased during the second period 2004-2005 to an average of 778 tons/Year, then it increased during the third period 2006-2007 to an average of 994 tons/year. Figure 33 shows the Jordan's exports of dates to the selected countries during 2002-2007.

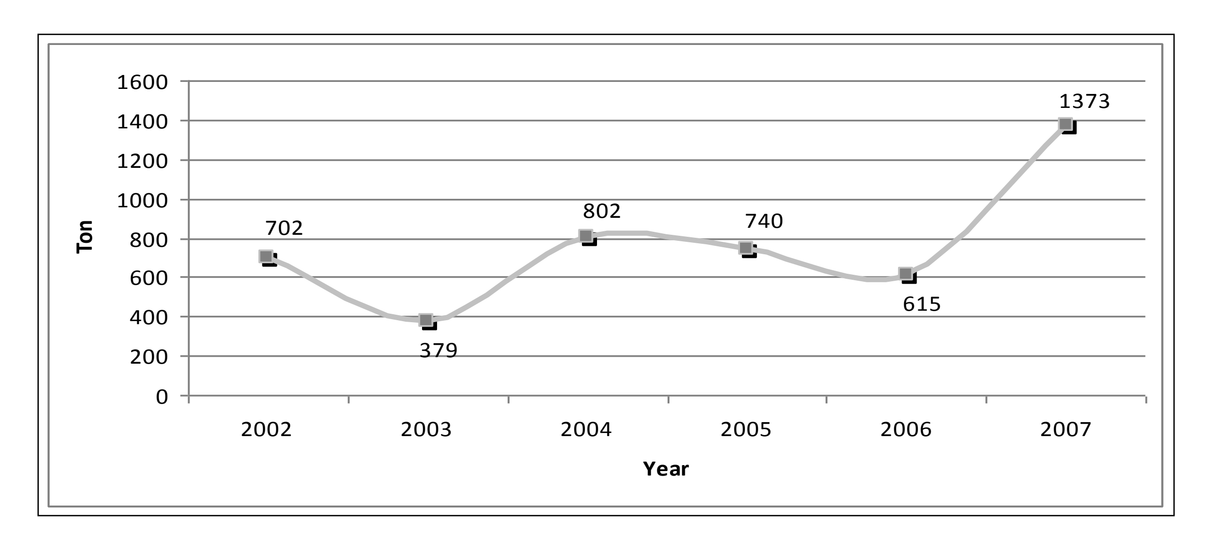


Figure 33: Jordan's exports of dates to the selected countries during 2002-2007

On the other hand, Jordan's share in the same market is varies; the major importing country was the United Arab Emirates of 253 tons through period 2002-2007, but with smallest share of Jordan exports of 0.18%. The highest share of Jordan exports was to Bahrain then Saudi Arabia comes with shares of 50.96% and 34.64%, respectively as shown in Table 46

Table 46: Average Imports for Dates to the Selected Countries from the World and from Jordan as an Average of the Period 2002-2007 (ton)

Country	Imports from Jordan	Total Imports	Share of Jordan's Exports (%)
France	47	24864	0.19
Bahrain	53	105	50.96
Kenya	5	80	5.66
Lebanon	231	3962	5.82
Qatar	36	331	10.78
Saudi Arabia	124	379	32.64
United Arab Emirates	253	140733	0.18
United Kingdom	23	11671	0.20

Table 47 shows that Jordan's dates exports increased from 0.72% in the first period (2002-2003) to 1.15% in the second period (2004-2005) then to 2.29% in the third period (2006-2007).

Table 47: Market Share for Dates in the Selected Countries

	No		N_1		N_2	
	2002	**2003**	**2004**	**2005**	**2006**	**2007**
Total imports for selected countries (ton)	71536	83510	40604	235186	41933	44001
Jordan exports to selected countries (ton)	702	379	802	753	615	1373
Jordan share (%)	0.981	0.454	1.975	0.320	1.467	3.120

Table 48 summarizes the CMS components. According to the table, Jordanian dates exports are positively affected by the export growth. The first component, the market size effect was favorable for the suppliers of Jordanian dates during the study period 404.07% in the second period and 65.23% in the third period). This means that Jordan was able to maintain its share of destination imports.

The second component, the market composition effect in the second period is 165 tons (69.49% of the total gain) and 248 tons (54.66% of the total gain) in the third period. This indicates that Jordan was able to concentrate on the countries of which imports grew relatively fast.

Finally, the negative number for the competitive effect indicates that the competitiveness of exports dates from Jordan to selected countries that means Jordan ability decrease since it faced a high competitive market.

Table 48: Constant Market Share Calculation Results for Jordanian Dates during the Period 2002-2007

Component	**Base Period No**	**Second Period N_1**	**Third Period N_2**
	2002-2003	**2004-2005**	**2006-2007**
Jordan Exports (q1)	541	778	994
Total Imports	77523	137895	42967
Jordan Share (%)	0.007	0.006	0.023
q1 - qo	-	237	454
Q1 - qo	76983	137355	42427
Market Size Effect	537	958	296
%	-	404.07	65.23
Market Composition Effect	132	165	248
%	-	69.49	54.66
Competitive Effect	-	-885	-90
%	-	-373.56	-19.88

4.2.5.3 Revealed Comparative Advantage (RCA), Balassa

Table 49 shows the estimated Balassa's index of Revealed Comparative Advantage (RCA) for dates in Jordan with Israel and South Africa. Jordan RCA index with Israel was less than one in 2008 and 2009 with value of 0.21 and 0.15, respectively. This shows no comparative advantage or specialization of trade. Regarding RCA index with South Africa was more than one in 2007 and 2008 with value of 7.87 and 8.62, respectively, which shows a comparative advantage or specialization of trade.

Table 49: Balassa's Revealed Comparative Advantage Index of Jordan

Year	Jordan RCA	
2007	Israel[4]	-
	South Africa	7.87
2008	Israel	0.21
	South Africa	8.62
2009	Israel	0.15
	South Africa[5]	-

4.2.5.4 Revealed Comparative Advantage (RCA), Vollrath

Table 50 shows estimated results for Revealed Relative Import Penetration Index (RMP) for Jordan with Israel and South Africa for dates. Jordan RMP indexes with Israel in 2008 and 2009 were 4,992.38 and 359.80, respectively. For RMP index with South Africa in 2007 and 2008, they were 6.25 and 10.43, respectively.

Table 50: Vollrath's Revealed Comparative Advantage Index of Jordan

Year	Jordan RMP	
2007	Israel	-
	South Africa	6.25
2008	Israel	4,992.38
	South Africa	10.43
2009	Israel	359.80
	South Africa	-

[4,5] Data is not available for these years

Table 51 shows that the relative trade advantage (RTA) for Jordan with Israel and South Africa for dates. Jordan RTA index with Israel was less than zero in 2008 and 2009 with value of -4992.17 and -359.65, respectively, which means that the dates do not have competitive advantages with Israel. Regarding RTA index with South Africa is more than zero; in 2007 it was 1.62 that means that the dates have certain competitive advantages in this year. In 2008 it was -1.81 (less than zero), which means that the dates do not have a competitive advantage then.

Table 51: Relative Trade Advantage Index of Jordan

Year	**Jordan RTA**	
2007	Israel	-
	South Africa	1.62
2008	Israel	-4992.17
	South Africa	-1.81
2009	Israel	-359.65
	South Africa	-

Chapter 5

Conclusion and Recommendations

5.1 Conclusions

The commercial cultivation of date palm trees in Jordan is considered new, but it increased over the past ten years. Moreover, it is considered as a successful sector in many regions in Jordan, especially in the Jordan Valley. This sector is still constantly growing where there are several new farms established which are specialized at varieties that demanded locally and internationally such as Medjool variety.

Despite the expansion of Dates palm cultivation in Jordan, there are some problems in this sector. The most important problems are associated with external marketing (export), where there are many obstacles facing farmers such as weak post-harvest techniques, packaging and containers, health requirements and standards in the country of export in addition to the lack of knowledge about the needed certificates requirements in some countries, especially the European ones.

Most of the date's palm farms are located in the Jordan Valley, specifically in Dair Alla region where occupies the highest percentage with 59.4%. Regarding varieties cultivated, the Barhi variety occupies the highest percentage (47%), followed by Medjool variety (43.3%). Few of the farms have grading and packaging lines, (5.2% of the sample), these farms are large farms. Most of the dates palm farms packed their dates in cardboard containers. The highest percentage of the dates sales are sent to the wholesale market where market it to the retailers through the commission agents.

Barhi variety is one of the major varieties of dates that the commission agents in the wholesale market-Amman, where it occupies the highest percentage (47.6%). Commission agents at the wholesale market are conducting the marketing process, they facilitate transactions only, and they take commission that ranges between 5-6% of the value of sales.

The retailers are divided into two types; First: Groceries and Supermarkets, Second: Vegetables and Fruit Shops, but the highest percentage is sold through groceries and supermarkets. There are many dates' varieties that the retailers deal with. The Khodari variety constitutes (29.3%) of the total quantities sold by the retailers, followed by Barhi variety.

Usually, the dates are exported either from the farms directly or through food exporting companies. Dates are exported to the Arab countries, especially the Gulf States, and also to foreign countries especially Europe. There is more than one method of shipping: by air or by road. Shipping by air is used when the shipping destination is a foreign country. When the shipping destination is to one of the Arab countries only 57.1% of exporters use shipping by air, and the other 42.9% of exporters use shipping by road.

Most of the importers are located in Wadi Al-Remam. The Khodari variety imports constitute about 47.6% of all imported varieties; most of importers buy dates for Ramadan, where 66.7% of imported dates are imported right before Ramadan. About 33.3% are imported during different times of the year.

This study shows that Jordanian dates have a comparative advantage as measured by the DRC and the SCB where both measures were less than one. In addition Jordanian dates have a competitive advantage with South Africa in 2007. However in 2008 it does not have a competitive advantage and does not have competitive advantage with Israel as measured by the RCA Balassa and Vollrath index.

CMS model showed that comparing the periods 2004-2005 and 2006-2007 with the base period 2002-2003, Jordan experienced positive actual export growth which mainly came from the standard growth effect, market effect. However, the competitive effect was negative (-373.56 in first period and -19.88 in second period) and indicates

the deterioration in the competitiveness of dates exports from Jordan to selected countries, which means that Jordan faced a high competitive market.

The export concentration indicator, i.e. the TEI, showed a high diversity in export concentration in the Saudi Arabia, Bahrain markets with value of 0.361, 0.351.

5.2 Recommendations

The current study draws the following recommendations:

- Expanding the dates palm cultivation focusing on high quality and highly demanded varieties such as Medjool variety in addition to consider date palm trees cultivation and their products from contractual export.

- Providing technical assistance in the areas of production, processing, marketing and exporting especially during the early stages of establishment which will reduce the risks and supporting studies on the development of date palm cultivation, manufacture and marketing of dates locally and externally.

- Providing specialized training and awareness sessions to mobilize and commit the target producer groups, including farmers, supervisors, laborers, middlemen, and transport expediters to the standards of performance necessary in order to ensure that initial export quality will be maintained till reaching the consumer.

- Improving the pre-harvest and post-harvest operations since it is a prerequisite for the successful establishment of date's farms to meet the stringent requirements needed for export.

- Trying to establish a union for small farmers and encouraging them to increase their interest with post-harvest operations such as grading and packaging in order to increase their chance for export.

- Providing financial support for export promotion activities such as participating in trade exhibitions, conducting trial shipments to selected potential

markets, establishing contacts between Jordanian exporters and importers in potential export markets, and touring other countries to learn about new technologies and procedures in production and marketing of dates palm, etc.

- Caring more for fresh dates which are very sensitive commodities that require special care to maintain quality along the market chain till they reach the final consumers.

- Conducting early measures for quality and standards during every step of the commodity chain.

- Finding innovative ways in improving the effectiveness and efficiency of their supply chain due to the increase in competition occurring in global markets,. Therefore they should exploit and rectify the linkages in the commodity chain and offer channels to maintain competitive advantage.

- Focusing on the markets of Saudi Arabia and Bahrain. Although the exported quantities to these countries are small now, but it is necessary to increase these quantities, for example, through the contracts with these countries.

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Appendices

Annex 1- Private Budget for Dates

1-1 Medjool Variety

Items	Quantity	Value (JD)
Tradable Outputs		**1046.55**
Dates (kg)	800	884.13
Seedlings	48	162.42
Tradable Inputs		**29.62**
Seedlings	16	14.29
Chemical Fertilizer (kg)		
- Compound	160	6.69
Plant Protection Chemicals (kg)		
- Pesticides	-	0.37
Land Preparation (JD/du)	1	0.60
Husbandry (JD/du)		7.67
Non-Tradable Inputs		**219.87**
Water Requirement (m^3)	260	1.99
Organic Fertilizer (Manure) (kg)	115	1.28
Manual Labor		
- Engineers	1	9.21
- Labor	2	27.62
Depreciation (JD)	-	79.78
Land Rent (du)	1	100.00
Total costs		**249.49**
Gross Margin		797.06

1-2 Barhi Variety

Items	Quantity	Value (JD)
Tradable Outputs		**447.22**
Dates (kg)	1280	253.86
Seedlings	64	193.36
Tradable Inputs		**29.62**
Seedlings	16	14.29
Chemical Fertilizer (kg)		
- Compound	160	6.69
Plant Protection Chemicals (kg)		
- Pesticides	-	0.37
Land Preparation (JD/du)	1	0.60
Husbandry (JD/du)		7.67
Non-Tradable Inputs		**219.87**
Water Requirement (m^3)	260	1.99
Organic Fertilizer (Manure) (kg)	115	1.28
Manual Labor		
- Engineers	1	9.21
- Labor	2	27.62
Depreciation (JD)	-	79.78
Land Rent (du)	1	100.00
Total costs		**249.49**
Gross Margin		197.73

Annex 2- Social Budget for Dates

2-1 Medjool Variety

Items	Quantity	Value (JD)
Tradable Outputs		**5761.23**
Dates (kg)	800	5598.81
Seedlings	48	162.42
Tradable Inputs		**19.74**
Seedlings	16	14.29
Chemical Fertilizer (kg)		
- Compound	160	1.01
Plant Protection Chemicals (kg)		
- Pesticides	-	0.36
Land Preparation (JD/du)	1	0.29
Husbandry (JD/du)		3.79
Non-Tradable Inputs		**142.87**
Water Requirement (m^3)	260	4.77
Organic Fertilizer. (Manure) (kg)	115	1.28
Manual Labor		
- Engineers	1	9.21
- Labor	2	27.62
Depreciation (JD)	-	-
Land Rent (du)	1	100.00
Total costs		**162.61**
Gross Margin		5598.62

2-2 Barhi Variety

Items	Quantity	Value (JD)
Tradable Outputs		**1668.38**
Dates (kg)	1280	1475.03
Seedlings	64	193.36
Tradable Inputs		**19.74**
Seedlings	16	14.29
Chemical Fertilizer (kg)		
- Compound	160	1.01
Plant Protection Chemicals (kg)		
- Pesticides	-	0.36
Land Preparation (JD/du)	1	0.29
Husbandry (JD/du)		3.79
Non-Tradable Inputs		**142.87**
Water Requirement (m^3)	260	4.77
Organic Fertilizer (Manure) (kg)	115	1.28
Manual Labor		
- Engineers	1	9.21
- Labor	2	27.62
Depreciation (JD)	-	-
Land Rent (du)	1	100.00
Total costs		**162.61**
Gross Margin		1505.77

Annex 3- Social Valuation of Tradable Inputs and Outputs

3-1 Social Valuation of Fertilizers

Item	Fertilizer
CIF (US$/kg)	1.22
Equilibrium Exchange Rate (JD/US$)	0.74
CIF (JD/kg)	0.91
Handling Charges JD/kg	-
Clearance Fees (JD/ton)	-
General Fees (JD/ton)	-
Losses 0.5% of Total Costs	-
Distance Between Port and Warehouse (km)	-
Transport Rate Between Warehouse to Port (JD/km)	-
Transportation Cost Between Port and Warehouse (JD/kg)	0.05
Import Parity Price at Wholesaler Warehouse (JD/kg)	0.96
Transport Cost From Warehouse to Farm (JD/kg)	0.05
Import Parity Price at Farm Gate (JD/kg)	**1.01**

3-2 Social Valuation of Pesticides

Item	Pesticides
Private Price (JD/du)	0.37
Official Exchange Rate (JD/US$)	0.71
private Price in (US$/du)	0.52
Equilibrium Exchange Rate (JD/US$)	0.74
Price Evaluated at the Equilibrium Exchange Rate (JD/du)	0.39
Import Tariff (6% of the Value) (-)	0.02
Adjusted Chemical Prices (Import Parity Price) (JD/du)	**0.36**

3-3 Social Valuation of Machinery

Item	Dates
Private Prices:	
Land Preparation (JD/du)	0.60
Husbandry (JD/du)	7.67
Private Prices Evaluated at Official Ex-Rate (US$ = 0.708)	0.71
Land Preparation (JD/du)	0.42
Husbandry (JD/du)	5.43
Private Prices Evaluated at Equilibrium Ex-Rate (US$ = 0.74)	0.74
Land Preparation (JD/du)	0.31
Husbandry (JD/du)	4.03
Adjusted Social Prices (- 6% Tariff)	0.06
Land Preparation (JD/du)	**0.29**
Husbandry (JD/du)	**3.79**

3-4 Social Valuation of Medjool Variety

Item	Medjool
FOB at Importing Country Border (US$/kg)	10.18
Equilibrium Exchange Rate (JD/US$)	0.74
Unadjusted Price of Produce (JD/kg)	7.55
Air Port Fees(Tariffs) (JD/kg)	0.04
Transportation Costs to the Air port (JD/kg)	0.014
Packaging (JD/kg)	0.50
Export Parity Price at Farm Gate (JD/kg)	**7.00**

3-5 Social Valuation of Barhi Variety

Item	Barhi
FOB at Importing Country Border (US$/kg)	2.30
Equilibrium Exchange Rate (JD/US$)	0.74
Unadjusted Price of Produce (JD/kg)	1.70
Air Port Fees(Tariffs) (JD/kg)	0.04
Transportation Costs to the Air port (JD/kg)	0.014
Packaging (JD/kg)	0.50
Export Parity Price at Farm Gate (JD/kg)	**1.15**

Annex 4- Farmers Questionnaire

I. GENERAL INFORMATION

1. Farm Location: ………………………………………………
2. Area producing: …………………………
3. Average production (for the last three years) ………………………….

II. INPUTS

Items	4. Source of inputs	5. Quantity of Inputs	6. Cost per unit of the inputs
a. Seedlings			
b. Fertilizers			
c. Pesticides			
d. Building			
e. Tractor			
f. Sprinkling Equipments			
g. Irrigation System			
h. Other (specify)			

III. EMPLOYEES

7. Number of Permanent Employees

	a. Skilled Labor				b. Un-Skilled Labor		
	Farm Manager	Agricultural Engineering	Agricultural College	Agricultural School	Cleaner	pollination	Harvesting
No. of Employees							
Cost of Employees							

8. Number of Temporary Employees

IV. PRODUCTION

9. Varieties	10. No. of Trees	11. Productivity
Madjool		
Barhi		
Dejlet Nour		
Hayyani		
Khadrawi		
Khalas		
Others (Specify)		

V. MARKETING CHANNELS AND MARGINS

12. Do you have grading and packaging line? ? ☐ Yes ☐ No

If Yes
a. Cost of grading and packaging line

b. Operational Cost

13. Post-harvest process

Items	Madjool	Barhi	Dejlet Nour
a- Do you dry and clean your produce?			
b- Type of Containers			
c- Capacity of Containers			
d- Price of containers			
e- Do you grade your produce?			
f- What is the grading system used?			
g- % of each grade of the produce			
h- Loss (unmarketable produce)			

i- Cost of Sorting			

Varieties	14. Where do you sell your produce?						
	Farm Gate (%)	Wholesale Market (define) (%)	Export-ers (%)	Process-ors (%)	Retailers (specify type of Retailer) (%)	Consume-rs (%)	Through a cooperative or group association (%)
Madjool							
Barhi							
Dejlet Nour							
Hayyani							
Khadrawi							
Khalas							
Others (Specify)							

Varieties	**15. Price (JD)** a. (Average prices in each outlet)						
	Farm Gate	Wholesale Market (define)	Export-ers	Process-ors	Retailers (specify type of Retailer)	Consume-rs	Through a cooperative or group association
Madjool							
Barhi							
Dejlet Nour							
Hayyani							
Khadrawi							
Khalas							
Others (Specify)							

b. Factors affecting prices

16. Transportation

a- Type and Capacity of Transportation Facility

b- Owner of the transportation facility

c- Cost per ton of transportation to different outlets

d- Waste and Loss for each crop and for each type of transportation

17. Marketing Costs
a- Market fees (Per ton)

b- Commission agents/traders fees or commission (Per ton)

c- Handling Costs (Per ton)

18. Storage
a- Do you Store your Produce? ☐ Yes ☐ No

If Yes:
b- Type of store

c- Period of storing

d- Cost for storage (per month per ton)

e- Loss and waste during storage

VI. EXPORTATION

19. Do you Export your Product ☐Yes ☐No

If Yes:
a- Countries you export to

b- Varieties that are exported

c- Quantity exported

d- Exporting prices

VII. CONTRACTS

20. Do you sign contracts with the buyers? ☐ Yes ☐ No

If Yes:
a- With whom do you sign contracts?

b- Type of contract

c- Conditions in the contract

VIII. CERTIFICATIONS

21. Do you have ISO certificate?
- Yes
- No
- I plan to get in the nearest future
- No need

22. Do you have HACCP certificate?
- Yes
- No
- I plan to get in the nearest future
- No need

23. Do you have Global GAP
- Yes
- No
- I plan to get in the nearest future
- No need

Annex 5- Commission Agents Questionnaire

1. Items	**2. Source %**			**3. Quantity**
	Farmers	Importers	Others (Specify)	
Madjool				
Barhi				
Dejlet Nour				
Hayyani				
Khadrawi				
Khalas				
Dates (unripe)				
Pasted dates in packing (1) kg.				
Dried dates in packing, of a content not exceeding (1) kg				
Dried dates in packing, of a content exceeding (1) kg.				
Others (Specify)				

Items	4. Purchasing Price	5. Marketing Cost				6. Selling Price
		Transport-ation	Storage	Market Fees	Commission Fees	
Madjool						
Barhi						
Dejlet Nour						
Hayyani						
Khadrawi						
Khalas						
Dates (unripe)						
Pasted dates in packing (1) kg.						
Dried dates in packing, of a content not exceeding (1) kg						
Dried dates in packing, of a content exceeding (1) kg.						
Others (Specify)						

- SALES

7. Where do you sell your products?

8. Total Sales of Dates

9. % of Dates Sales to all Sales

Annex 6- Retailers Questionnaire

1. Items	2. Source %				3. Quantity
	Farmers	Importers	Commission agents (Wholesale Market)	Others (Specify)	
Madjool					
Barhi					
Dejlet Nour					
Hayyani					
Khadrawi					
Khalas					
Dates (unripe)					
Pasted dates in packing (1) kg.					
Dried dates in packing, of a content not exceeding (1) kg					
Dried dates in packing, of a content exceeding (1) kg.					
Others (Specify)					

Items	4. Purchasing Price	5. Marketing Cost			6. Selling Price
		Transport-ation	Storage	Others (Specify)	
Madjool					
Barhi					
Dejlet Nour					
Hayyani					
Khadrawi					
Khalas					
Dates (unripe)					
Pasted dates in packing (1) kg.					
Dried dates in packing, of a content not exceeding (1) kg					
Dried dates in packing, of a content exceeding (1) kg.					
Others (Specify)					

- SALES

7. Total Sales of Palm Dates

……………………………………

8. % of Palm Dates Sales to all Sales

……………………………………

Annex 7- Importers Questionnaire

1. What Do You Import?

- ☐ Potato
- ☐ Onion
- ☐ Banana
- ☐ Citrus
- ☐ Dates
- ☐ Apple
- ☐ Cereals
- ☐ Others (Specify)

2. What Dates Variety/Product do you Import?
(Scale 1 – 5: 5- very high quality, 1 – very low quality)

a. Variety	b. Source	c. Quantity	d. Price		e. Quality (1-5)	f. Import Highest Month
			P.P	S.P		
Madjool						
Barhi						
Dejlet Nour						
Hayyani						
Khadrawi						
Dates (unripe)						
Pasted dates in packing (1) kg.						
Dried dates in packing, of a content not exceeding (1) kg						
Dried dates in packing, of a content exceeding (1) kg.						
Others (Specify)						

- TRANSPORTATION

3. Dates Destination:

- ☐ Commission agents .... %
- ☐ Retailers .... %
- ☐ Final Consumer .... %
- ☐ Other (Specify) .... %

4. Type and Capacity of Transportation Facility

a. From Shipping Location to your Store

b. From your Store to Different Outlets

5. Owner of the Transportation Facility

a.
b.

6. Cost per Ton of Transportation to Different Outlets

a.
b.

- RE-PACKAGING

7. Do you Re-packaging your Products?

☐ Yes ☐ No

If Yes,

8. Type of Packaging

- Cardboard
- Plastic
- Polystyrene
- Nylon Bags

9. Cost of Packaging

- STORAGE

10. Do you Store your Products?

☐ Yes ☐ No

If Yes,

11. Who Own the Store?

12. Type and Capacity of store:

13. Period of storing:

14. Cost for Storage (per Month per Ton):

- CONTRACTS

15. Do you Sign Contracts with the Buyers/Sellers?
☐ Yes ☐ No

If Yes,

16. With who do you Sign Contracts?
- ☐ Commission agents
- ☐ Retailers
- ☐ Exporters
- ☐ Other (Specify)

17. Contract Condition

18. Validity of the Contract (in years)

19. Specification and Standards of the Palm Dates

Annex 8- Exporters Questionnaire

- SOURCE OF THE PRODUCE

1. Items	**2. Source %**				**3. Quantity**
	Produces at their farms	At my warehouse	Wholesale Market	Other Traders	
Madjool					
Barhi					
Dejlet Nour					
Hayyani					
Khadrawi					
Khalas					
Dates (unripe)					
Others (Specify)					

Items	**4. Purchasing Price**			
	Products bought from the farms directly	Products bought from the warehouse	Products bought from the wholesale market	Products bought from other traders
Madjool				
Barhi				
Dejlet Nour				
Hayyani				
Khadrawi				
Khalas				
Dates (unripe)				
Others (Specify)				

Items	5. Destination of the product		6. Selling Price	
	Arab Countries	Foreign market	Arab Countries	Foreign market
Madjool				
Barhi				
Dejlet Nour				
Hayyani				
Khadrawi				
Khalas				
Dates (unripe)				
Others (Specify)				

- STORAGE

7. Do you Store your Produce? ☐ Yes ☐ No

If Yes:

8. Type of store

9. Period of storing

10. Cost for storage (per month per ton)

11. Loss and waste during storage

- TRANSPORTATION

12. Type and Capacity of Transportation Facility to Shipping Point

13. Owner of the transportation facility

14. Cost per ton of transportation to Shipping Point

15. Waste and Loss for each crop and for each type of transportation

- SHIPPING

16. Type of Shipping
a. By Air
b. By Sea
c. By Road

17. Cost of Shipping ☐ on you ☐ on the imported party

If it's on you:

a. Cost of Shipping for each Shipping Type

b. Cost of Handling

- CONTRACTS

18. Do you sign contracts with the Sellers/Buyers? ☐ Yes ☐ No

If Yes:

19. With whom do you sign contracts?

20. Type of contract

21. Conditions in the contract

تحليل سلسلة السلعة و التصدير للتمور في الأردن

إعداد
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المشرف
الأستاذ الدكتور محمد سمير الهباب

الملخص

تمحور الهدف الرئيسي للدراسة زيادة الصادرات من التمور الأردنية من خلال عدد من الأهداف الثانوية و التي ركزت على تعريف و تحليل القنوات التسويقية، و دراسة دور و وظيفة كل مرحلة من مراحل السلسلة، و تقييم الميزة التنافسية للتمور الأردنية. و لتحقيق هذه الأهداف تم استخدام عدد من المنهجيات شملت: تعريف كل مرحلة من مراحل سلسلة السلعة للتمور، و إعداد التحليل الوظيفي و المخطط للقنوات التسويقية للتمور المحلية و المستوردة، و حساب الهوامش التسويقية لأصناف المجهول و البرحي، كما و تم استخدام عدد من المقاييس مثل تكلفة الموارد المحلية (DRC) و نسبة التكاليف للمنافع الاجتماعية (SCB) و نسبة السوق الثابت (CMS) و (TEI) لتقييم التنافسية للتمور.

أظهرت نتائج هذه الدراسة أن الأردن تمتلك ميزة نسبية في انتاج التمور، و كما تمتلك تنافسية جيدة و لكن فقط مع جنوب افريقيا. أظهرت أيضا أن أعلى تركيز للصادرات كان للمملكة العربية السعودية والبحرين. و فيما يتعلق بالصادرات من التمور الأردنية متزايد بشكل مستمر، والأردن قادرة على الحفاظ على حصتها البلدان المستوردة. أظهرت النتائج كذلك أن التمور الأردنية غير قادرة على التنافس بل القدرة التنافسية لها في تدهور و يواجهها كذلك سوق منافس قوي.

نظرا للزيادة في المنافسة التي تحدث في الأسواق العالمية، توصي الدراسة المنتجين على ايجاد طرق مبتكرة في تحسين فعالية وكفاءة سلاسل التوريد الخاصة بهم. ولذلك ينبغي أن تستغل تصحح الروابط في قنوات سلسلة السلعة و الحفاظ على ميزة تنافسية.